

Panasonic Industrial Company

Components Group

Line Card Catalog

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Electrolytic Capacitors, Resistors, Film Capacitors, Inductors
Ceramic Capacitors, Varistors, Switches, RF Modules, DC-DC Converters

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For more information visit: <http://www.panasonic.com/industrial/components/utilities/rohshaqs.htm>



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Design and specifications are subject to change without notice. Please review technical specifications before purchase.
For any safety concerns regarding these products, please contact us immediately for technical consultation.

Component Part Number Designations

	A	B	C	D	E	F	G	H	J	K	L	M
EA		Speaker Systems								Speaker Kits		
EC	Aluminum Electrolytic Caps. (radial lead)		Ceramic Disc Cap.	Hi-Q MLCC	Aluminum Electrolytic Cap.			Plastic Film Cap.	MLCC	Ceramic Disc Cap (class 2)		
EE	Aluminum Electrolytic Caps. (radial lead)		Electric Double Layer Cap. "Gold Cap"		SMT AL Lytic (lead free)	Polymer Aluminum Electrolytic Capacitors						
EF		Piezoelectric Speakers	Ceramic Filters Saw Devices						Ceramic Filters		Acousto-Optic Devices	
EH				DCDC Converter								
EK												
EL		LC Filters, Duplexers, Choke Coils	Choke Coils		Peaking Coils	Line Filters		Linearity Coils	Chip Inductors	Coil Type EMI Filters	SMD Choke Coils	
EM												
EN	Up/Down Converters (CATV)		RF Modulators			Modules	RF Front end System Units	VIF Units				
EO											Aspherical Glass Lens	
EQ			Variable Inductors			Variable Inductors						
ER	Metal Film Chip Resistors	Circuit Protector; Micro Chip Fuse		Carbon Film Resonators		Wirewound Resistors	Metal (oxide) Film Resistors		Thick Film Chip Resistors			
ES		Push Signal Switches		Slide Switches	Push & Detector Switches			Input/Output Transformers	Transformers: Chip, pulse; Current; Common Mode Choke			
ET						Hi Voltage Transformers						
EU			Coin & Bill Validating Units							High-Voltage Power Supplies		
EV	Slide Potentiometers; Position Sensors	Slide Potentiometers	Rotary Pots.		Encoders				Rotary Pots.		Rotary Pots.	Cermet Trimmer Pots.
EW	Slide Potentiometers		Encoders, Rotary Pots.									
EX		Chip Resistor Networks; Resistor Array, Chip Attn, RC Filter	Bead Cores; Chip Bead Cores; Chip Bead Arrays, EMI Filters			Capacitor Networks						
EY							Graphite Sheet				Aspherical Glass Lenses	
EZ	Networks; Chip Cap., Chip FD; Chip 3-term Cap.								Multilayer Varistor			Magneto-Resistive Element

	N	O	P	Q	R	S	T	U	V	W	X	Y	Z
EA						Speakers							
EC		Aluminum Electrolytic Capacitor (Snap-in)	Plastic Film Cap.	Plastic Film Cap.	Ceramic Trimmer Cap.				Ceramic Trimmer Cap.	Plastic Film Cap.		Reverse Geometry MLCC	
EE							Aluminum Electrolytic Cap. (snap-in terminal)	Aluminum Electrolytic Cap. (Radial Lead)	Aluminum Electrolytic Cap. (SMT)				
EF		Ceramic Resonators SAW Resonators				SAW Duplexers			Piezoelectric Receivers				
EH								Hybrid ICs Module					
EK										ALIVH			
EL							Voltage Step-Up Coils			L-R Filter (Inductor)			
EM							Touch Panels, Keyless Entry Systems						
EN				Fiber Optic Components					Electronic Tuners	RF Modules			
EQ						Variable Inductors			Variable Inductors				
ER	Precision Metal Film Resistors	Metal Film Resistors		Metal (Oxide) Film Fuse Resistors		Thermally Sensitive Resistors	NTC Thermistors	Wirewound Resistors w/ Thermal Cutoffs		Wirewound Resistors	Metal Film Resistors		ZNR Transient Surge Absorbers
ES			Panel Switches					Panel Switches					
ET			Power Transformers	Power Choke Coils		Switching Transformers		Power Supply Units			Power Supply units	Power Supply Units	
EU			PTC Thermistors; Ceramistor		Remote Control units								
EV	Trimmers: Carbon Chip; 6mm Carbon		Light Touch Switches	Encoders, Light Touch Switches				Rotary Pots.		Position Sensors, Rotary Pots.			
EW			Antenna				Sensors: Displacement, Rotation, Angular Rate		Rotary Pots.				
EY			Thermal Cut-offs (TCO)										

Technical Support

Electrolytic Capacitors	Inductors, SAW Devices, Lenses	Keyboards, Remotes, Antenna	Switches, Potentiometers, Encoders	Film Capacitors, MLCC, ZNR, Resonators	Power Supplies, ALIVH, PWB, Audio	RF Modules
201-392-4955	201-271-3173	949-462-1809	201-392-6104	201-392-6920	201-392-4864	201-392-4864

Electrolytic Capacitors

Aluminum Electrolytic

		Series	Series	Appearance	Operating Temperature	(Working Voltage) Capacitance	Features	
Surface Mount Type*	General Purpose	VS	ECE-V__S/A EEE-_A/S		-40 ~ +85°C	(4 ~ 100 VDC) 0.1 ~ 1,500 μF	<ul style="list-style-type: none"> General purpose, 2,000 hrs at 85°C Very compact size 	
		Long Life	HA	EEV-HA EEE-HA		-40 ~ +105°C	(6.3 ~ 100 VDC) 0.1 ~ 1,500 μF	<ul style="list-style-type: none"> Long life, 1000 to 2,000 hrs. at 105°C Very compact size
	HB		EEV-HB EEE-HB		(4 ~ 50 VDC) 0.1 ~ 470 μF		<ul style="list-style-type: none"> Long life, 2,000 hrs. at 105°C 5.8 mm height (≤ ϕ 6) 	
	HC		EEE-HC		(6.3 ~ 50 VDC) 0.1 ~ 1,000 μF		<ul style="list-style-type: none"> Long life, 3,000~5,000 at 105°C 5.8 mm height (≤ ϕ 6) 	
	HD		EEV-HD EEE-HD		(10 ~ 100 VDC) 0.47 ~ 330 μF		<ul style="list-style-type: none"> Very long life, 5,000 hrs. at 105°C Industrial grade 	
	EB		EEV-EB		-25 ~ +105°C		(160 ~ 450 VDC) 2.2 ~ 100 μF	<ul style="list-style-type: none"> High Voltage, 3,000 to 5,000 hrs. at 105°C Large can, 10 ~ 18 mm (Dia.)
	Low ESR/Long Life	TG	EEV-TG EEE-TG		-40 ~ +125°C	(10 ~ 100 VDC) 10 ~ 4,700 μF	<ul style="list-style-type: none"> High temperature, 2,000 hrs. at 125°C Low ESR at low temperature 	
		TK	EEV-TK EEE-TK			(10 ~ 35 VDC) 47 ~ 470 μF	<ul style="list-style-type: none"> High temperature, 3,000 hrs. at 125°C Low ESR at low temperature 	
		FP	EEE-FP		-55 ~ +105°C	(6.3 ~ 35 VDC) 100 ~ 1,800 μF	<ul style="list-style-type: none"> Very Low ESR, tantalum replacement High Temperature Reflow (260°C) 	
		FK	EEV-FK EEE-FK			(6.3 ~ 100 VDC) 3.3 ~ 6,800 μF	<ul style="list-style-type: none"> Long life, 2,000 to 5,000 hrs. at 105°C Low ESR, Tantalum replacement Compact & wide size range, 4 ~ 18 mm (Dia.) 	
		FC	EEV-FC EEE-FC			-40 ~ +105°C	(6.3 ~ 50 VDC) 1 ~ 1,500 μF	<ul style="list-style-type: none"> 1,000 hrs. at 105°C Low impedance
	Bi-Polar	VS-BP	ECE-V__A__N EEE-V__A__N		-40 ~ +85°C	(6.3 ~ 50 VDC) 0.22 ~ 47 μF	<ul style="list-style-type: none"> General Purpose 5.4 mm height (≤ ϕ 6) 	
		HB-BP	EEV-HP EEE-HP		-40 ~ +105°C		<ul style="list-style-type: none"> Industrial Grade 5.8 mm height 	
Radial Lead	General Purpose	85°C	M	ECA-__M		-40 ~ +85°C (-25°C: 160~450VDC)	(6.3 ~ 450 VDC) 0.1 ~ 22,000 μF	<ul style="list-style-type: none"> General purpose, 2000 hrs. at 85°C Compact size
		105°C	NHG	ECA-__HG		-55 ~ +105°C (-25°C: 160~450VDC)	(6.3 ~ 450 VDC) 0.1 ~ 22,000 μF	<ul style="list-style-type: none"> Long life, 1,000 to 2,000 hrs. at 105°C Compact size
		Miniature	KA	ECE-A__KA		-40 ~ +85°C	(4 ~ 50 VDC) 0.1 ~ 470 μF	<ul style="list-style-type: none"> General purpose, 1,000 hrs. at 85°C 7 mm height
			KS	ECE-A__KK/KS			(4 ~ 50 VDC) 0.1 ~ 330 μF	<ul style="list-style-type: none"> General purpose, 1000 hrs. at 85°C 5 mm height
		Bi-Polar	BP-SU	ECE-A__N__U/X		-40 ~ +85°C	(6.3 ~ 50 VDC) 0.47 ~ 6,800 μF	<ul style="list-style-type: none"> 2,000 hrs. at 85°C Bi-Polar general purpose
	Long Life	High Voltage	EB	EEU-EB		-40 ~ +105°C (-25°C: 160~450VDC)	(10 ~ 450 VDC) 0.47 ~ 3,300 μF	<ul style="list-style-type: none"> 5,000 to 10,000 hrs. at 105°C Very long life
			ED	EEU-ED		-25 ~ +105°C	(160 ~ 450 VDC) 10 ~ 330 μF	<ul style="list-style-type: none"> Very long life 8,000 to 10,000 hrs. at 105°C High Ripple Current
			EE	EEU-EE		-25 ~ +105°C	(160 ~ 450 VDC) 10 ~ 330 μF	<ul style="list-style-type: none"> Very long life 8,000 to 10,000 hrs. at 105°C High Ripple Current at high frequency
		Low Impedance	FC	EEA/U-FC		-55 ~ +105°C	(6.3 ~ 100 VDC) 1.0 ~ 15,000 μF	<ul style="list-style-type: none"> 1,000 to 5,000 hrs. at 105°C Low impedance, miniature
			FM	EEU-FM		-40 ~ +105°C	(6.3 ~ 50 VDC) 22 ~ 6,800 μF	<ul style="list-style-type: none"> Long life, 2,000 to 7,000 hrs. at 105°C Low ESR, approximately half of FC
125°C	TA	EEU-TA		-40 ~ +125°C	(10 ~ 63 VDC) 1 ~ 4,700 μF	<ul style="list-style-type: none"> 2,000 hrs. at 125°C Automotive applications 		

*NOTE: Surface Mount Type RoHS Compliant Part Number Prefix: **NOTE:** For higher temperature reflow, use EEE (A_) suffix:
 EEE (Diameter: 3~10mm) 260°C Max. Reflow: AP & AR (4~10mm dia.)
 EEV (Diameter: 12.5~18mm) 245°C Max. Reflow: AQ & AM (12.5~18mm dia.)

Specialty Polymer

		Series	Part Number	Appearance	Operating Temperature	(Working Voltage) Capacitance	Features
Surface Mount	General Purpose	CD	EEF-CD		-40 ~ +105°C	(2 ~ 16Vdc) 2.2 ~ 220 μF	<ul style="list-style-type: none"> Low ESR, high ripple current 1.8 mm height, ESR 18 mΩ maximum
		CX	EEF-CX			(2 ~ 6.3 Vdc) 100 ~ 330 μF	<ul style="list-style-type: none"> Low ESR, high ripple current 1.9 mm height, ESR 15 mΩ maximum
		UD	EEF-UD			(2 ~ 8 Vdc) 68 ~ 470 μF	<ul style="list-style-type: none"> Low ESR, high ripple current 2.8 mm height, ESR 15 mΩ maximum
		UE	EEF-UE			(2 ~ 8 Vdc) 100 ~ 560 μF	<ul style="list-style-type: none"> Low ESR, high ripple current 4.2 mm height, ESR 12 mΩ maximum
	Low ESR	S	EEF-S		(2 ~ 6.3 Vdc) 56 ~ 560 μF	<ul style="list-style-type: none"> Lower ESR, higher ripple current 1.8/2.0/2.8/4.2mm height, ESR 5 to 9 mΩ max 	
	125°C	H	EEF-H		-40 ~ +125°C	(2 ~ 8 Vdc) 33 ~ 330 μF	<ul style="list-style-type: none"> High reliability Low ESR, high ripple current

Electric Double Layer

		Series	Part Number	Appearance	Operating Temperature	(Working Voltage) Capacitance	Features
SMT	EN	EEC-EN		-10 ~ +60°C	(3.3 Vdc) 0.2 F	<ul style="list-style-type: none"> SMT Re-flow solderable Coin type, low profile 	
	EP	EEC-EP		-10 ~ +60°C	(3.3/2.6 Vdc) 0.033 F	<ul style="list-style-type: none"> SMT Re-flow 260°C max. Miniature, 3.8mm dia. x 1.5mm Height 	
Radial Lead	SD	EEC-S0HD		-25 ~ +70°C	(5.5 Vdc) 0.022 ~ 0.33 F	<ul style="list-style-type: none"> General purpose, 1,000 hrs. @ 70°C μA range IC memory back-up 	
	SG	EEC-S5R5			(5.5 Vdc) 0.47 ~ 1.5 F		
	SE	EEC-SE0H		-25 ~ +70°C	(5.5 Vdc) 0.022 ~ 0.22 F	<ul style="list-style-type: none"> 1,000 hrs. @ 70°C Lead taping for auto insertion 	
	NF	EEC-F5R5U		-25 ~ +85°C	(5.5 Vdc) 0.1 ~ 1.5 F	<ul style="list-style-type: none"> 1,000 hrs. @ 70°C, general purpose 1,000 hrs. @ 85°C, high reliability 	
	F	EEC-F5R5H		-25 ~ +85°C	(5.5 Vdc) 0.033 ~ 1.0 F		
	RG	EEC-RG		-25 ~ +85°C	(3.6 Vdc) 1.0 F	<ul style="list-style-type: none"> 2,000 hrs. @ 85°C, general purpose High Reliability Backup for mA-A range 	
RF	EEC-RF		-25 ~ +85°C	(3.6-5.5 Vdc) 0.68 F			
HW	EEC-HW0D		-25 ~ +70°C -25 ~ +60°C	(2.3 Vdc) 1 ~ 50 F (2.1 Vdc) 70 F	<ul style="list-style-type: none"> Large capacitance Backup for mA - A range 		
HZ	EEC-HZ0D		-25 ~ +60°C	(2.5 Vdc) 3.3-10 F	<ul style="list-style-type: none"> Large Capacitance Lower ESR than HW 		

Large Can Aluminum

		Series	Part Number	Appearance	Operating Temperature	(Working Voltage) Capacitance	Features
2 & 3 - Terminal Snap-In	TS-UP	ECO-S__P ECE-C__P ECE-3__P		-40 ~ +85°C (-25°C: 350-500Vdc)	(16 ~ 500 Vdc) 33 ~ 68,000 μF	<ul style="list-style-type: none"> General purpose 2,000 ~ 3,000 hrs. @ 85°C 20 mm low profile available 	
	TS-UQ	EET-UQ		-40 ~ +85°C (-25°C: 350-450Vdc)	(160 ~ 450 Vdc) 82 ~ 100,000 μF	<ul style="list-style-type: none"> General purpose, 85°C 2000 hrs. 30% smaller than TS-UP 	
	TS-HA	ECO-S__A ECE-C__A ECE-3__A		-40 ~ +105°C (-25°C: 385-450Vdc)	(10 ~ 450 Vdc) 33 ~ 68,000 μF	<ul style="list-style-type: none"> 2,000 ~ 3,000 hrs. @ 105°C 20 mm low profile available 	
	TS-HB	ECO-S__B ECE-C__B ECE-3__B		-40 ~ +105°C (-25°C: 385-450Vdc)	(160 ~ 450 Vdc) 82 ~ 2,700 μF	<ul style="list-style-type: none"> 3,000 hrs. @ 105°C 20 ~ 25% smaller than TS-HA 	
	TS-HC	EET-HC		-40 ~ +105°C (-25°C: 350-450Vdc)	(10 ~ 450 Vdc) 100 ~ 100,000 μF	<ul style="list-style-type: none"> 2,000 hrs. @ 105°C 30% smaller than TS-HB 	
	TS-ED	EET-ED		-40 ~ +105°C (-25°C: 400-450Vdc)	(200 ~ 450 Vdc) 56 ~ 2,200 μF	<ul style="list-style-type: none"> High ripple current capability 3,000 hrs. @ 105°C 	
	TS-EE	EET-EE		-40 ~ +105°C (-25°C: 400-450Vdc)	(200 ~ 450 Vdc) 75 ~ 1,800 μF	<ul style="list-style-type: none"> 3,000 hrs. @ 105°C Very high ripple current capability 	
	TS-XB	EET-XB		-40 ~ +105°C (-25°C: 315-450Vdc)	(160 ~ 450 Vdc) 39 ~ 2,200 μF	<ul style="list-style-type: none"> Long life: 7,000 hrs. @ 105°C Compact size 	
4&5 Terminal Snap-In	T-UP	ECE-T__P (4-Pin) ECE-P__P (5-Pin)		-40 ~ +85°C (-25°C: 350-500Vdc)	(16 ~ 500 Vdc) 270 ~ 270,000 μF	<ul style="list-style-type: none"> 3,000 hrs. @ 85°C, 4 or 5-pin Wide capacitance range 	
	T-HA	ECE-T__A (4-Pin) ECE-P__A (5-Pin)		-40 ~ +105°C (-25°C: 350-450Vdc)	(16 ~ 450 Vdc) 390 ~ 120,000 μF 330 ~ 250,000 μF	<ul style="list-style-type: none"> 3,000 hrs. @ 105°C, 4 or 5-pin Wide capacitance range 	

Resistors

Surface Mount Chip Resistors

Thick Film Chip Resistors

Low Resistance Thick Film Chip Resistors

Ultra Low Value Chip Resistors

High Power Wide Term.

Appearance	Series	Case Size	Power Rating (W)	Resistance Range	Resistance Tolerance (%)	T.C.R. (ppm/°C)	LxWxT Dimensions (mm)	Quantity 7" Reel (pcs.)	Features
General Purpose 5%, 1% 	ERJ-XGNJ	01005	1 / 32 W	10 ~ 1 M	± 5	± 200	0.40 x 0.20 x 0.13	20,000	● Halogen Free
	ERJ-1GEJ	0201	1 / 20 W	1.0 ~ 1 M	± 5		0.60 x 0.3 x 0.23	15,000	● Small size and lightweight
	ERJ-1GEF			10 ~ 1 M	± 1				
	ERJ-2GEJ	0402	1 / 16 W	1.0 ~ 2.2 M	± 5		1.0 x 0.5 x 0.35	10,000	● High reliability using metal glaze thick film resistive element and three layers of electrodes
	ERJ-2RKF			10 ~ 1 M	± 1				
	ERJ-3GEYJ	0603	1 / 10 W	1.0 ~ 10 M	± 5		1.6 x 0.8 x 0.45	5,000	● Compatible with automatic placement of bulk taping and bulk case packaging
	ERJ-3KEF			10 ~ 1 M	± 1				
	ERJ-6ENF	0805	1 / 8 W	1.0 ~ 10 M	± 5		2.0 x 1.25 x 0.6	5,000	● Reflow and flow solderability
	ERJ-6GEYJ			10 ~ 2.2 M	± 1				
	ERJ-8ENF	1206	1 / 4 W	1.0 ~ 10 M	± 5		3.2 x 1.6 x 0.6	5,000	● Meets ISO-9001 & QS-9000 standards
	ERJ-8GEYJ			10 ~ 2.2 M	± 1				
	ERJ-14YJ	1210	1 / 4 W	1.0 ~ 10 M	± 5		3.2 x 2.5 x 0.6	5,000	● Low resistance tolerance: ERJ-3E; 6E; 8E; 14, 12 series: ± 1%
	ERJ-14NF			10 ~ 1 M	± 1				
	ERJ-12YJ	1812	1 / 2 W	1.0 ~ 10 M	± 5		4.5 x 3.2 x 0.6	5,000	● NOTE: Chip resistor 5% tolerance
	ERJ-12NF			10 ~ 1 M	± 1				
	ERJ-12ZYJ	2010	1 / 2 W	1.0 ~ 10 M	± 5		5.0 x 2.5 x 0.6	5,000	Resistance Range (Ω)
	ERJ-12SF			10 ~ 1 M	± 1				
	ERJ-1TYJ	2512	1 W	1.0 ~ 1 M	± 5		6.4 x 3.2 x 0.6	4,000	T.C.R. (ppm / °C)
	ERJ-1TNF			10 ~ 1 M	± 1				
	Current Sensing 5%, 1% 	ERJ-2BWJ	0402	1 / 8 W	0.047 ~ 0.091		± 5	± 300	1.0 x 0.5 x 0.35
ERJ-2BSJ		0.10 ~ 0.20							
ERJ-2BQJ		0603	1 / 10 W	0.22 ~ 1.0	± 1	± 250	1.6 x 0.8 x 0.45	5,000	
ERJ-2BQF				0.1 ~ 0.2					
ERJ-3RSJ		0603	1 / 10 W	0.22 ~ 0.91	± 5	0.1 ~ 0.91 Ω ± 300	1.6 x 0.8 x 0.45	5,000	
ERJ-3RQJ				0.1 ~ 0.2					
ERJ-3RSF		0805	1 / 8 W	0.22 ~ 9.1	± 1	1.0 ~ 9.1 Ω ± 200	2.0 x 1.25 x 0.6	5,000	
ERJ-3RQF				0.1 ~ 0.2					
ERJ-6RSJ		0805	1 / 8 W	0.22 ~ 9.1	± 5	0.1 ~ 0.91 Ω ± 300	2.0 x 1.25 x 0.65	5,000	
ERJ-6RQJ				0.1 ~ 0.2					
ERJ-6RSF		1206	1 / 2 W	0.22 ~ 9.1	± 1	1.0 ~ 9.1 Ω ± 200	3.2 x 1.6 x 0.6	5,000	
ERJ-6RQF				0.01 ~ 0.1					
ERJ-6BWJ		1206	1 / 4 W	10m ~ 50m	± 5	0.015 ~ 0.05 Ω ± 200	3.2 x 1.6 x 0.6	5,000	
ERJ-8BW				0.01 ~ 0.1					
ERJ-8RSJ		1206	1 / 4 W	0.1 ~ 0.2	± 5	0.1 ~ 0.91 Ω ± 250	4.5 x 3.2 x 0.6	5,000	
ERJ-8RQJ				0.22 ~ 9.1					
ERJ-8RSF		1210	1 / 4 W	0.1 ~ 0.2	± 1	1.0 ~ 9.1 Ω ± 200	3.2 x 2.5 x 0.6	5,000	
ERJ-8RQF				0.1 ~ 0.2					
ERJ-14RSJ		1812	1 / 2 W	0.22 ~ 9.1	± 5	0.1 ~ 0.91 Ω ± 200	4.5 x 3.2 x 0.6	5,000	
ERJ-14RQJ				0.1 ~ 0.2					
ERJ-14RSF	2512	1 W	0.22 ~ 9.1	± 1	1.0 ~ 9.1 Ω ± 100	6.4 x 3.2 x 0.6	4,000		
ERJ-14RQF			0.1 ~ 0.2						
ERJ-12RSJ	2512	1 W	0.1 ~ 0.2	± 5	0.1 ~ 0.91 Ω ± 200	6.4 x 3.2 x 0.6	4,000		
ERJ-12RQJ			0.22 ~ 9.1						
ERJ-12RSF	2512	1 W	0.1 ~ 0.2	± 1	1.0 ~ 9.1 Ω 100	6.4 x 3.2 x 0.6	4,000		
ERJ-12RQF			0.22 ~ 9.1						
ERJ-1TRSJ	2512	1 W	0.1 ~ 0.2	± 5	0.1 ~ 0.91 Ω ± 200	6.4 x 3.2 x 0.6	4,000		
ERJ-1TRQJ			0.22 ~ 9.1						
ERJ-1TRSF	2512	1 W	0.1 ~ 0.2	± 1	1.0 ~ 9.1 Ω ± 100	6.4 x 3.2 x 0.6	4,000		
ERJ-1TRQF			0.22 ~ 9.1						
Current Sensing (mΩ) 5%, 1% 	ERJ-L03	0603	1 / 10 W	47 ~ 100 milli.	± 5	± 200	1.6 x 0.8 x 0.45	5,000	● Small size and lightweight
	ERJ-L06	0805	1 / 8 W	47 ~ 100 milli.	± 5	± 100	2.0 x 1.25 x 0.6	5,000	● High reliability using metal glaze thick film resistive elements and three layers of electrodes
	ERJ-L08	1206	1 / 4 W	47 ~ 100 milli.	± 5	± 100	3.2 x 1.6 x 0.6	5,000	● Compatible with automatic placement of bulk taping and bulk case packaging
	ERJ-L14KJ	1210	1 / 3 W	20 ~ 100 milli.	± 5	± 100	3.2 x 2.5 x 0.6	5,000	● Reflow and flow solderability
	ERJ-L14KF								
	ERJ-L12KJ	1812	1 / 2 W	20 ~ 100 milli.	± 5	± 100	4.5 x 3.2 x 0.6	5,000	● Meets ISO-9001 & QS-9000 standards
	ERJ-L12KF								
	ERJ-L1D	2010	1 / 2 W	40 ~ 100 milli.	± 5	<47 milli: ± 300 ≥47 milli: ± 100	5.0 x 2.5 x 0.6	5,000	● Low resistance values for ERJ-L14; L12; L1W series: 47 mΩ ~ 100 mΩ
	ERJ-L1WKJ	2512	1 W	40 ~ 100 milli.	± 5	± 100	6.4 x 3.2 x 1.1	3,000	● Metal plate is used as resistance element
	ERJ-L1WKF								
ERJ-M1WT	2512	1 W	1 ~ 4 milli.	± 5	1 ~ 2 mΩ ± 500 1 ~ 2 mΩ ± 500	6.4 x 3.2 x 0.8	3,000	● Reflow and flow solderability	
ERJ-M1WTF			3 ~ 4 milli.						
ERJ-M1WSJ	2512	1 W	3 ~ 20 milli.	± 5	≥ 5 mΩ: ± 100 < 5 mΩ: ± 350	6.4 x 3.2 x 0.8	3,000	● ERJ-M1WT type is for heat dissipation ±1% tolerance for 1~2 mΩ available upon request	
ERJ-M1WSF			± 1						
ERJ-A1	2512	1.33W	10m ~ 10k	± 1, ± 5	≥100 mΩ, 1%: ± 100 ≥100 mΩ, 5%: ± 200 <100 mΩ: ± 350	6.4 x 3.2 x .55	4,000	● High solder joint reliability	
ERJ-B1	2010	1W	5m ~ 1M	± 1, ± 5	5-9 mΩ 1mΩ step 10m to 1m, E-24	5.0 x 2.5 x .55	5,000	● Excellent heat dissipation	
ERJ-B2	1206	1/2 W	5m ~ 1M	± 1, ± 5	5-9 mΩ 1mΩ step 10m to 1m, E-24	3.2 x 1.6 x 0.65	5,000	● Excellent heat dissipation	







Surface Mount Chip Resistors





	Appearance	Series	Case Size	Power Rating (W)	Resistance Range	Resistance Tolerance (%)	T.C.R. (ppm/°C)	LxWxT (mm) Dimensions	Quantity 7" Reel (pcs.)	Features			
Thin Film Chip Resistors	<p>Ultra Precision</p> <p>0.1%, 0.5%</p>	ERA-2A	0402	1/16 W	10 ~ 100K	± 0.1, 0.5	± 25	1.0 x 0.5 x 0.35	10,000	<ul style="list-style-type: none"> ● Small size and lightweight ● High reliability ● Low T.C.R. and current noise ● Excellent non-linearity ● Reflow & flow solderability ● Meets ISO-9001 standards ● High operating temperature capability -55 to +155 for ERA-2A, ERA-3A and ERA6A types 			
		ERA-3AEB	0603	1/10 W	47 ~ 330 K	± 0.1	± 25	1.6 x .80 x 0.45	5,000				
		ERA-6AEB	0805	1/8 W	47 ~ 1 M			2.0 x 1.25 x .5					
		ERA-3YEB	0603	1/10 W	100 ~ 33 K			1.6 x 0.8 x 0.45					
		EBA-6YEB	0805	1/8 W	100 ~ 100 K	± 0.5	± 25	2.0 x 1.25 x 0.5	5,000				
		ERA-14EB	1210	1/4 W	100 ~ 200 K			3.2 x 2.5 x 0.6					
		ERA-3AED	0603	1/10 W	47 ~ 330 K			1.6 x .80 x 0.45					
		ERA-6AED	0805	1/8 W	47 ~ 1 M			2.0 x 1.25 x .5					
		ERA-3AHD	0603	1/10 W	10 ~ 43			1.6 x .80 x 0.45					
		ERA-6AHD	0805	1/8 W	10 ~ 43			2.0 x 1.25 x .5					
		ERA-3Y_D	0603	1/10 W	10 ~ 330K			± 50, ± 25, ± 100			1.6 x 0.8 x 0.45		
		ERA-6Y_D	0805	1/8 W	10 ~ 1M	± 50, ± 25, ± 100	2.0 x 1.25 x 0.5						
		Linear Thermistors		ERAS	0805	1 / 10 W	10 ~ 10 K	± 5	1500 ± 200		2.0 x 1.25 x 0.5	5,000	<ul style="list-style-type: none"> ● Excellent linearity of temperature coefficient to resistance value ● Good for temperature compensation circuit in applications such as VRM and/or PA module
43 ~ 5.1 K	± 5						2700 ± 10%						
6.2 ~ 470	± 5						3900 ± 10%						
ERAV	0603			1 / 16 W	10 ~ 10 K	± 5	1500 ± 200	1.6 x 0.8 x 0.45	5,000				
					43 ~ 3.3 K	± 5	2700 ± 10%						
					7.5 ~ 390	± 5	3900 ± 10%						
ERAW	0402	1 / 32 W	43 ~ 1K	± 5	2700 ± 10%	1.0 x 0.5 x 0.35	10,000						
			22 ~ 390		3300 ± 10%								
Chip Resistor Array	<p>Chip Attenuator</p>	EXB-24AT	0404	1 / 25 W Package	Attenuation Range 1 ~ 5 dB 6 ~ 10 dB	Attenuation Tolerance ± 0.3 dB ± 0.5 dB	Characteristic Impedance 50 Ω	1.0 x 1.0 x 0.35	10,000	● Space saving design using unbalanced pie-type attenuator			
		ERA-38V	0603 x 4 Convex Term	1 / 16 W Element	100K-220K	0.5	± 25	3.2 x 1.6 x 0.5	5,000	<ul style="list-style-type: none"> ● High density of resistors in single array chip ● Improved placement efficiency (2 to 4 times greater) compared to flat chip type resistors 			
		EXB-14V	0201 x 2 Convex Term	1 / 32 W	10 ~ 1 M	± 5					± 200 x 10 ⁻⁶ / °C	0.8 x 0.6 x 0.35	
		EXB-18V	0201 x 4 Flat Term	1 / 32 W	10 ~ 1 M	± 5	1 - 100; ± 600-100x10 ⁻⁷ / °C	2.0 x 1.0 x 0.45	10,000				
		EXB-N8V	0402 x 4 Concave Term	1 / 32 W	1 ~ 1 M	± 5		2.0 x 1.0 x 0.45					
		EXB-24V	0402 x 2 Convex Term	1 / 16 W	1 ~ 1 M	± 5 ± 1 upon request		1.0 x 1.0 x 0.35					
		EXB-28V	0402 x 4 Convex Term	1 / 32 W			2.0 x 1.0 x 0.35						
		EXB-2HV	0402 x 8 Convex Term	1 / 16 W Element			3.8 x 1.6 x 0.45						
		EXB-34V	0603 x 2 Convex Term		1.6 x 1.6 x 0.50								
		EXB-38V	0603 x 4 Convex Term	1 / 16 W Element	3.2 x 1.6 x 0.50	5,000	10 > : -100 - + 600	1.6 x 1.6 x 0.60					
		EXB-V4V	0603 x 2 Concave Term	1.6 x 1.6 x 0.60									
		EXB-V8V	0603 x 4 Concave Term	3.2 x 1.6 x 0.60									
		EXB-S8V	0805 x 4 Concave Term	1 / 10 W Element	10 ~ 1 M	5.08 x 2.2 x 0.70	2,500						
		Chip R-Network		EXB-D10C	1206 Concave Term	1 / 20 W Element	47 ~ 1 M	± 5	± 200		3.2 x 1.6 x 0.55	5,000	<ul style="list-style-type: none"> ● High density placement for digital signal applications: 8 bussed resistors for pull up/down circuits ● Superior mountability due to unique concave terminal
				EXB-E10C	1608 Concave Term	1 / 16 W Element					4.0 x 2.1 x 0.55	4,000	
EXB-A10P	2512 Concave Term			1 / 16 W Element	6.4 x 3.1 x 0.55								
Chip RC-Network		EZA-CT	0805	R=1/32W C=12 V	Combination of R and C R = 10, 22, 47, 100, 220, 470, 1KΩ C = 10, 22 pF		2.0 x 1.25 x 0.55	5,000	<ul style="list-style-type: none"> ● R-C filters for noise reduction in an 0805, 1206 & 1608 package 				
		EZA-DT	1206	R=1/16W C=12 V	Combination of R and C R = 22, 47, 100, 220, 470, 1KΩ C = 22, 47, 100 pF		3.2 x 1.6 x 0.65	5,000					
		EZA-ST	1608	R=1/16W C=25 V			4.0 x 2.1 x 0.65	4,000					
ESD Suppressors		EZAEG3A	0603	C = 0.05 pF		1.6 x .80 x 0.5	5,000	<ul style="list-style-type: none"> ● Good ESD suppression ● Good ESD withstanding ● Low capacitance 					
		EZAEG2A	0402	C = 0.10 pF		1.0 x 0.5 x 0.38	10,000						
		EZAEGCA	0805	C = 0.25 pF (4 Per Pkg.)		2.6 x 1.85 x 0.5	5,000						

















■ EIA Standard Resistance Values E-96 Tolerance *1% | E-24 Tolerance *5%, 0.5%, 0.1%

Film Capacitors

General Applications

	Dielectric	Series	Appearance	Operating Temperature	Ratings	Features	Applications
Chip Type	Stacked Metallized	ECH-U(X)		-55 ~ +125°C	0.0001 ~ 0.1 μF 10/16/50 V _{DC}	<ul style="list-style-type: none"> Non-inductive, stacked Miniature Reflow soldering Tight C-tolerance 	<ul style="list-style-type: none"> High density mounting SMD (industrial grade)
		ECH-U(C)			0.047 ~ 0.22 μF 50/100 V _{DC}	<ul style="list-style-type: none"> Non-inductive, stacked Miniature Reflow and flow solderability Tight C-tolerance 	<ul style="list-style-type: none"> High density mounting SMD Industrial Use Filters; oscillators
		ECW-U(C)		-55 ~ +105°C -40 ~ +85°C	0.001 ~ 1.0 μF 16/50/100/250 V _{DC}	<ul style="list-style-type: none"> Non-inductive, stacked Miniature Similar to polyester film cap 	<ul style="list-style-type: none"> High density mounting SMD (commercial grade)
		ECW-U(V16)		-55 ~ +85°C	0.001 ~ 0.15 μF 250/400/600 V _{DC}	<ul style="list-style-type: none"> Non-inductive, stacked Miniature Similar to polyester film cap 	<ul style="list-style-type: none"> High density mounting SMD (commercial grade)
		ECW-U(X)		-55 ~ +105°C	0.001 ~ 0.01 μF 100 V _{DC}	<ul style="list-style-type: none"> Non-inductive, stacked Reflow soldering 	<ul style="list-style-type: none"> Electronic exchange Ringer circuit telephone & PBX
		ECP-U(A)		-40 ~ +85°C	0.1 ~ 1.0 μF 16 V _{DC}	<ul style="list-style-type: none"> Non-inductive, stacked Most miniaturized Reflow soldering 	<ul style="list-style-type: none"> Coupling, filtering & PLL

	Dielectric	Series	Appearance	Operating Temperature	Ratings	Features	Applications
Interference Suppressors <small>(safety standard approval capacitors)</small>	Metallized Polyester	ECQ-U(Y)		-40 ~ +100°C	0.001 ~ 0.047 μF 250 VAC	<ul style="list-style-type: none"> UL, CSA, SEMKO, DEMKO, NEMKO, FIMKO, VDE, SEV approved (Class Y) 	<ul style="list-style-type: none"> Universal applications Interference suppression
		ECQ-U(G)			0.01 ~ 1.0 μF 250 VAC (UL, CSA) 300 VAC (IEC384-14)	<ul style="list-style-type: none"> Flame retardant case Equipped with safety mechanism UL, CSA, SEMKO, DEMKO, NEMKO, FIMKO, VDE, SEV approved (Class X1) 	<ul style="list-style-type: none"> Noise suppressor for AC line
		ECQ-U(L)			0.01 ~ 2.2 μF 250 VAC (UL, CSA) 275 VAC (IEC384-14)	<ul style="list-style-type: none"> Smaller size than ECQ-U(V) or ECQ-U(G) UL, CSA, BDE approved (Class X2) 	<ul style="list-style-type: none"> High performance, fuse function type in AC line
AC Use	Metallized Polyester/ Polypropylene	ECH-A(X)		-25 ~ +70°C	0.5 ~ 6 μF 180 ~ 430 VAC	<ul style="list-style-type: none"> Flame retardant epoxy coating Equipped with safety mechanism 	<ul style="list-style-type: none"> Motors

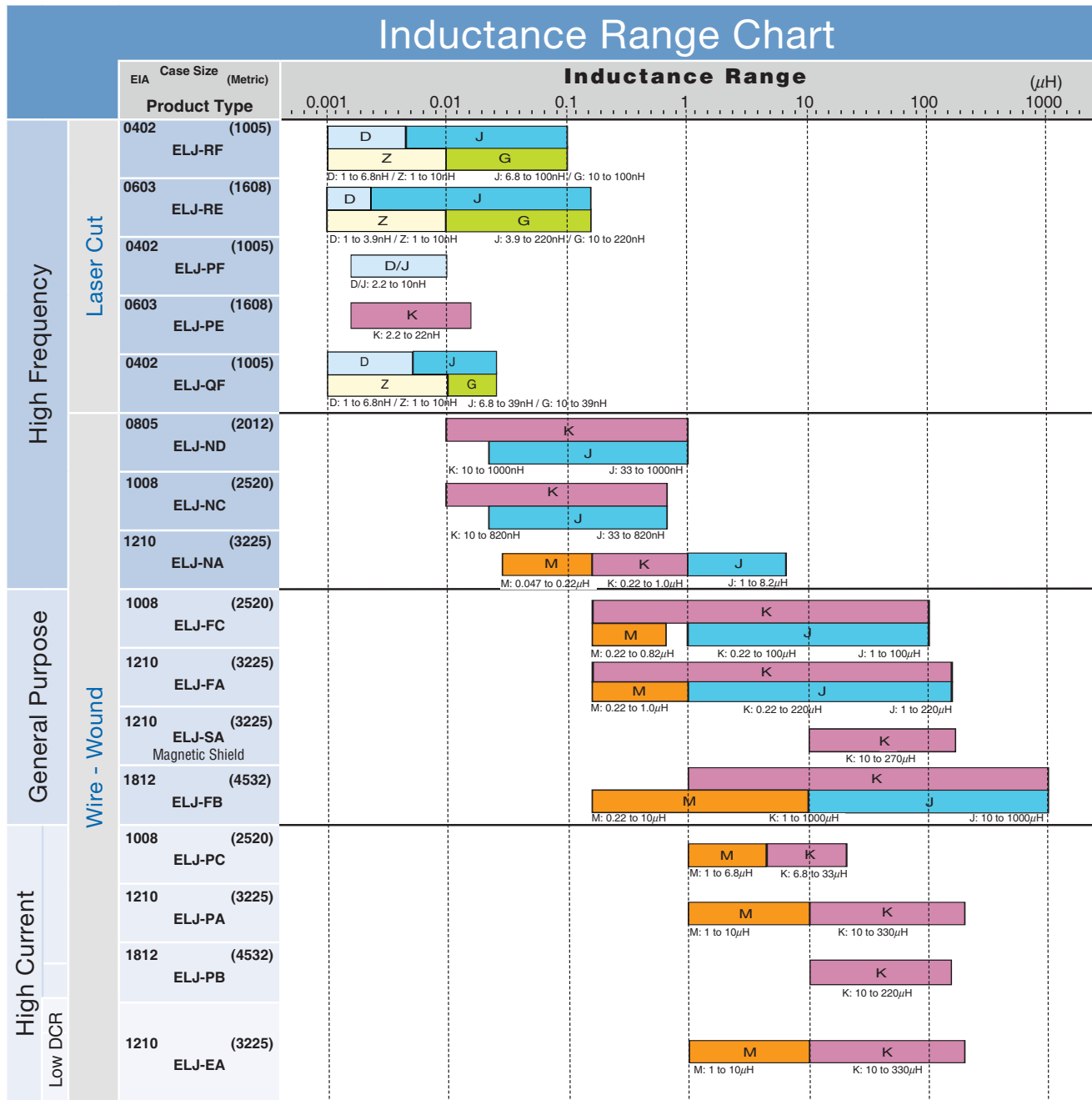
	Dielectric	Series	Appearance	Operating Temperature	Ratings	Features	Applications
Metallized Film/Foil	Stacked Metallized	ECQ-V		-40 ~ +85°C	0.01 ~ 2.2 μ F 50/63/100 V _{DC}	<ul style="list-style-type: none"> • Non-inductive • Stacked Construction 	<ul style="list-style-type: none"> • General purpose applications • Audio
	Polyester	ECQ-B			0.0001 ~ 0.47 μ F 50/63/100 V _{DC}	<ul style="list-style-type: none"> • Non-inductive 	<ul style="list-style-type: none"> • General purpose applications • Audio
		ECQ-M			0.001 ~ 0.47 μ F 400/600 V _{DC}	<ul style="list-style-type: none"> • Non-inductive 	<ul style="list-style-type: none"> • General purpose applications
	PPS	ECH-S		-40 ~ +125°C	0.0001 ~ 0.47 μ F 50/100 V _{DC}	<ul style="list-style-type: none"> • Non-inductive • Low temperature coefficient • Tight C-tolerance • High Temperature 	<ul style="list-style-type: none"> • High temperature applications • Oscillation & timing circuits
	Polypropylene	ECQ-P(Z)		-40 ~ +85°C	0.0001 ~ 0.47 μ F 50/100 V _{DC}	<ul style="list-style-type: none"> • Non-inductive • Tight C-tolerance 	<ul style="list-style-type: none"> • Timing circuits • Temperature compensation • Audio
		ECQ-P(U)			0.001 ~ 0.47 μ F 200/400/630 V _{DC}	<ul style="list-style-type: none"> • Non-inductive • Epoxy resin coating • Low dissipation factor 	<ul style="list-style-type: none"> • High frequency, high current circuits
		ECQ-F		-25 ~ +85°C	0.001 ~ 0.47 μ F 200/400/630 V _{DC}	<ul style="list-style-type: none"> • Non-inductive 	<ul style="list-style-type: none"> • High frequency, high current circuits
Metallized Film	Polyester	ECQ-E(H)		-40 ~ +105°C	0.47 ~ 2.2 μ F 450 V _{DC}	<ul style="list-style-type: none"> • Smaller Size • Self healing property 	<ul style="list-style-type: none"> • Active filtering circuit
		ECQ-E(F)		-40 ~ +85°C	0.001 ~ 10 μ F 100 ~ 1250 V _{DC}	<ul style="list-style-type: none"> • Wide capacitance range • Compact size 	<ul style="list-style-type: none"> • General purpose applications
		ECQ-E(B)			0.01 ~ 0.47 μ F 250 V _{DC}	<ul style="list-style-type: none"> • Wide capacitance range • Miniaturized 	
		ECQ-E(C)			0.1 ~ 2.2 μ F 450 V _{DC}	<ul style="list-style-type: none"> • Flame retardant case 	<ul style="list-style-type: none"> • Active filtering circuit
Metallized Film	Polypropylene	ECW-F(L)		-25 ~ +105°C	0.022 ~ 2.4 μ F, 400 V _{DC} 0.01 ~ 1.3 μ F, 630 V _{DC}	<ul style="list-style-type: none"> • Low Dissipation Factor • High Voltage 	<ul style="list-style-type: none"> • High frequency, high current circuits
		ECW-F(B)		-25 ~ +85°C	0.022 ~ 0.47 μ F 250/400 V _{DC}	<ul style="list-style-type: none"> • Low Dissipation Factor 	
		ECW-H(V)			0.001 ~ 0.1 μ F 800 ~ 2000 V _{DC}	<ul style="list-style-type: none"> • Low Dissipation Factor 	<ul style="list-style-type: none"> • High pulse circuits (TV, display, electronic ballast)
		ECW-F(A)		-40 ~ 105°C	0.1 ~ 6.8 μ F 250 V _{DC}	<ul style="list-style-type: none"> • Miniaturized Size • High Reliability Design 	<ul style="list-style-type: none"> • High frequency, high current circuits
		ECW-H(U)		700 VAC: -40 ~ +100°C 800 VAC: -40 ~ +85°C	0.001 ~ 0.0068 μ F 700/800 VAC	<ul style="list-style-type: none"> • Low Dissipation Factor 	<ul style="list-style-type: none"> • Electronic ballast • Output capacitor

Inductors

Surface Mount Chip Inductors

	Series	EIA Case Size	Inductance @ 100 MHz Nominal	Q Min* @ 100 MHz	Q Typical @ 800 MHz	Rated DC Current Max. (mA)	DC Resistance (Ω)	SRF** Min. (MHz)	Features	
High Frequency	Laser Cut	ELJ-RF	0402	1.0 to 100 nH	8	21 to 14	400 to 90	0.05 to 5.5	6000 to 1200	<ul style="list-style-type: none"> ● Non-polarity ● Precision inductance ● High self-resonant frequency
		ELJ-RE	0603	1.0 to 220 nH	4 to 12	47 to 20	500 to 70	0.05 to 7.5	6000 to 900	
		ELJ-PF	0402	2.2 to 10 nH	7	--	1900 to 750	0.04 to 0.26	5300 to 3200	<ul style="list-style-type: none"> ● High current rating for high-frequency use
		ELJ-PE	0603	2.2 to 22 nH	8 to 9	--	2100 to 700	0.03 to 0.15	6000 to 1800	
		ELJ-QF	0402	1.0 to 39 nH	10	35 to 41	150 to 400	0.05 to 1.7	6000 to 1800	<ul style="list-style-type: none"> ● High Q
General Use	Wire-Wound	ELJ-ND	0805	10 to 1,000 nH	8 to 15	--	540 to 120	0.18 to 3.88	3300 to 80	<ul style="list-style-type: none"> ● Low inductance, tight tolerance ● Stable L-value over varied ambient conditions
		ELJ-NC	1008	10 to 820 nH	10 to 15	--	280 to 100	0.32 to 2.1	2500 to 100	
		ELJ-NA	1210	0.047 to 8.20 μ H	10 to 13	--	450 to 60	0.20 to 11	680 to 38	
		ELJ-FC	1008	0.22 to 100 μ H	15 to 25	--	190 to 60	0.70 to 21	230 to 12	<ul style="list-style-type: none"> ● Suitable for general use applications
ELJ-FA	1210	0.22 to 220 μ H	20 to 30	--	360 to 45	0.29 to 21	230 to 7			
ELJ-SA	1210	10 to 270 μ H	40	--	18 to 5	1.80 to 14	30 to 4			
ELJ-FB	1812	0.22 to 1,000 μ H	30 to 50	--	700 to 40	0.30 to 53	230 to 2.1			
High Current		ELJ-PC	1008	1.0 to 33 μ H	8 to 20	--	475 to 120	0.45 to 6.5	95 to 16	<ul style="list-style-type: none"> ● Low DC resistance and high DC current rating ● Suitable for use in power lines as a choke coil
		ELJ-PA	1210	1.0 to 330 μ H	7 to 20	--	600 to 50	0.15 to 16	150 to 3	
		ELJ-PB	1812	10 to 220 μ H	10 to 20	--	360 to 90	0.65 to 9	19 to 4	
		ELJ-EA	1210	1.0 to 330 μ H	7 to 20	--	500 to 30	0.09 to 9.23	100 to 4	<ul style="list-style-type: none"> ● Very Low DC resistance

* Q Min. - Please check each specification. ** SRF - Self Resonant Frequency



Code	Value
Z:	± 0.2 nH
D:	± 0.3 nH
E:	± 0.5 nH
G:	± 2 %
A:	± 3 %
J:	± 5 %
K:	± 10 %
M:	± 20 %

Ceramic Capacitors

Multi-Layer Ceramic Chip Capacitors (MLCC)

	Series	Appearance	Case Size (EIA)	Operating Voltage (VDC)	Temperature Characteristics	Capacitance Range	Features
Large Capacitance Values	ECJ-0		0402	6.3, 10V	X5R, Y5V	1 μ F to 2.2 μ F	<ul style="list-style-type: none"> ● High cap in small case sizes (2.2μF in 0402, 10μF in 0603, 22 μF in 0805) ● Low ESR/ESL ● High ripple current capability ● High reliability ● Non-polarity
	ECJ-1		0603	6.3, 10, 16V	X5R, Y5V	1 μ F to 10 μ F	
	ECJ-2		0805	6.3, 10, 16, 25V	X5R, Y5V	1 μ F to 22 μ F	
	ECJ-3		1206	6.3, 10, 16, 25V	X7R, X5R, Y5V	1 μ F to 22 μ F	
Standard Capacitance Values	ECJ-Z		0201	6.3, 10, 16, 25V	X5R, X7R, Y5V, C0K, C0J, C0H, C0G, SL/GP	0.5 pF to 0.22 μ F	<ul style="list-style-type: none"> ● Wide selection ● Small case size (0201) ● High reliability ● Non-polarity
	ECJ-0		0402	6.3, 10, 16, 25, 50V		0.5 pF to 0.47 μ F	
	ECJ-1		0603	6.3, 10, 16, 25, 50V		0.5 pF to 0.47 μ F	
	ECJ-2		0805	6.3, 10, 16, 25, 50V		27 pF to 0.47 μ F	
	ECJ-3		1206	6.3, 10, 16, 25, 50V		3300 pF to 0.68 μ F	
Low Profile	ECJ-G		0805	6.3, 10, 16V	X5R	1 μ F to 4.7 μ F	● H = 0.85 \pm 0.1 mm
	ECJ-H		1206	6.3, 10V		1 μ F to 10 μ F 2.2 μ F to 22 μ F	● H = 0.85 \pm 0.1 mm
Reverse-Geometry Wide terminations	ECY-2		0508	10, 25, 50V	X5R	0.01 μ F to 1 μ F	● Very low ESR/ESL
	ECY-3		0612	6.3, 16, 50V		0.1 μ F to 10 μ F	
Mid-range Voltages	ECJ-1_2A		0603	100V	C0H, X7R	10 pF to 1000 pF	<ul style="list-style-type: none"> ● Suitable for mid-voltage applications ● High reliability ● Non-polarity
	ECJ-1_2D			200V		220 pF to 1000 pF	
	ECJ-2_2A		0805	100V		10 pF to 0.015 μ F	
	ECJ-2_2D			200V		10 pF to 0.01 μ F	
	ECJ-3_2A		1206	100V		1500 pF to 0.1 μ F	
	ECJ-3_2D			200V		470 pF to 0.022 μ F	
High Voltage	ECJ-3_2J		1206	630V	C0H, X7R	100 pF to 0.01 μ F	● Suitable for high-voltage applications
Microwave (High Q)	ECD		0201	25V	C0G	0.1 pF to 5.6 pF	<ul style="list-style-type: none"> ● Very high Q, at high frequencies (GHz) ● Tight tolerance ● Wide range up to 15 pF with small steps between values
			0402			0.1 pF to 15 pF	
Arrays	ECJ-U		0405	6.3 ~ 50V	C0H, X7R, X5R	10 pF to 1 μ F	● 2 capacitors in 1 pkg for low part number count
	ECJ-T		0805	16, 25, 50V	C0H	10 pF to 220 pF	<ul style="list-style-type: none"> ● 4 capacitors in 1 pkg for low part number count
	ECJ-T		0805	16, 25, 50V	C0H, X7R, Y5V	10 pF to 0.1 μ F	
	ECJ-R		1206	10, 16, 25, 50V	C0H, X7R, Y5V	10 pF to 1 μ F	

Ceramic Capacitors

	Series	Appearance	Series	Operating Voltage	Temperature Characteristics	Capacitance Range	Features
High Voltage (AC, Pulse, and Low Loss Applications)	ECC- HT ___ KG		HT-KG	500V _{DC}	SL/GP	10 pF to 470 pF	● Class I Dielectric with Temperature Coefficient: +350 to -1000 ppm/°C
	ECK- HT ___ KB		HT-KB		Y5P	100 pF to 4,700 pF	● Class II Dielectric with Temperature Coefficient: ±10%
	ECK- HT ___ KC		HT-KC		Y5S	100 pF to 4,700 pF	● Class II Dielectric with Temperature Coefficient: ±22%
	ECC- 3 ___ KGE		KGE	1kV _{DC} - 3kV _{DC}	SL/GP	12 pF to 470 pF	● Class I Dielectric with Temperature Coefficient: +350 to -1000 ppm/°C
	ECK- 3 ___ KBP		KBP		Y5P	100 pF to 5,600 pF	● Class II Dielectric with Temperature Coefficient: ±10%
	ECK- 3 ___ KRP		KRP		Y5R	100 pF to 4,700 pF	● Class II Dielectric with Temperature Coefficient: ±22%
High Voltage (DC Applications)	ECK- S ___ KB		KB	1kV _{DC} - 3kV _{DC}	Y5P	100 pF to 4,700 pF	● From 6 mm to 14.5 mm in size
	ECK- 3 ___ MEH		MEH		Y5U	680 pF to 0.01 μF	● From 7 mm to 16.5 mm in size
	ECK-D4 ___ MDV		MDV	10, 12, 15kV _{DC}	Y5T	100 pF to 0.01 μF	● Very high voltage ratings
	ECC-T3		Hi-V SMD		SL/GP	10 pF to 68 pF	● Molded SMD case for reflow soldering
	ECK-T3	Y5P		100 pF to 470 pF			
Interference Suppression 'Safety' Capacitors	ECK- NA		NS-A	250 / 440V _{AC}	Y5P, Y5U	100 pF to 4,700 pF	● UL/CSA/IEC X1/Y1 approval, 4000 VAC for 1 minute
	ECK- TS		TS		Y5P, Y5U, Y5V	100 pF to 0.01 μF	● UL/CSA/IEC X1/Y2 approval, 2600 VAC for 1 minute
	ECK- VS		VS		GP/SL	10 pF to 68 pF	● UL/CSA/SEMCO X1/Y2 approval, 1500 VAC for 1 minute
					Y5P, Y5U, Y5V	100 pF to 4,700 pF	● 5 mm lead spacing
	ECC-TBC		BC	250V _{AC}	SL/GP	10 pF to 68 pF	● UL(CSA)/SEMCO Y2 approval, 1500 VAC for 1 minute
	ECK-TBC				Y5P, Y5U, Y5V	100 pF to 4,700 pF	● SMD (7.1 x 6.3 x 2.5 mm)
	ECC-TFC		FC	250V _{AC}	SL/GP	5 pF to 330 pF	● UL(CSA)/SEMCO Y2 approval, 1500 VAC for 1 minute
	ECK-TFC				Y5P, Y5U, Y5V	470 pF to 4,700 pF	● SMD, small size (5.7 x 4.5 x 2.3 mm)

Varistors & Thermistors

Varistors

Type	Part Number	Case Size	Varistor Voltage	Max. Allowable Voltage (DC)	Capacitance	Maximum ESD [IE061000-4-2]	
Low Capacitance	EZJ-ZZV120EA	0201	12 V	6.7 V	47 pF max	Contact Discharge Voltage: 8kV Air Gap Discharge Voltage: 15kV	
	EZJ-ZZV270RA		27 V	16 V	20 pF max		
	EZJ-Z0V080KA	0402	8 V	5 V	330 pF max		
	EZJ-Z0V120JA		12 V	6.7 V	220 pF max		
	EZJ-Z0V270RA		27 V	16 V	47 pF max		
	EZJ-Z0V270EA				20 pF max		
	EZJ-Z1V080KA	0603	8V	5 V	330 pF max		
	EZJ-Z1V120KA		12 V	6.7 V			
	EZJ-Z1V270GA		27 V	16 V	100 pF max		
	EZJ-Z1V330GA		33 V	26 V			
Ultra Low Capacitance	EZJ-ZZV800AA	0201	80 V	5 V	3 pF max	Contact Discharge Voltage: 8kV Air Gap Discharge Voltage: 15kV	
	EZJ-Z0V80010	0402		18 V	1 pF max		
	EZJ-Z0V80015D			5 V	1.5 +_0.5 pF		
	EZJ-Z0V500AA			50 V	18 V		
	EZJ-Z0V800AA			80 V			
	EZJ-Z0V171AA	0603		170 V	18 V		3 pF max
	EZJ-Z1V80010			80 V	5 V		
	EZJ-Z1V500AA			50 V			
	EZJ-Z1V800AA	0603		80 V	18 V		3 pF max
	EZJ-Z1V171AA			170 V			
2 Array	EZJ-ZSV120JA	0504	12 V	6.7 V	220 pF max	Contact Discharge Voltage: 8kV Air Gap Discharge Voltage: 15kV	
	EZJ-ZSV270RA		27 V	16 V	20 pF max		
	EZJ-ZSV270EA				47 pF max		
	EZJ-ZSV800AA		80 V	18 V	3 pF max		
	EZJ-ZSV171AA		170 V				
4 Array	EZJ-P0V080MA	0402	8 V	5.6 V	680 pF max		
	EZJ-P0V080KA				330 pF max		
	EZJ-P0V080GA				100 pF max		
	EZJ-P0V080DA				27 pF max		
2 Varistors 2 Capacitors Per Array	EZJ-ZSV270DA	0504	27 V	16 V	27 pF		Contact Discharge Voltage: 30kV
	EZJ-ZSV270PA				33 pF		
	EZJ-ZSV270SA				39 pF		
	EZJ-ZSV270TA				43 pF		
	EZJ-ZSV270EA				47 pF		
High Capacitance	EZJ-S1VB822	0603	12 V	6 V	8200 pF	Contact Discharge Voltage: 30kV	
	EZJ-S1VC392		30 V	18 V	3900 pF		
	EZJ-S1VD182		50 V	30 V	1800 pF		
	EZJ-S2VB223	0805	12 V	6 V	22000 pF		
	EZJ-S2YC822		30 V	18 V	8200 pF		
	EZJ-S2YD472		50 V	30 V	4700 pF		

Multi-layer Varistor

ZNR Transient Surge Absorbers


























Series	Appearance	Case Size (EIA) LxWxH (mm)	Electrical Characteristics	Operating Temperature	Features	
Zinc-oxide	Surface Mount	EZJ-ZZ	0201 (0.6 x 0.3 x 0.3)	Varistor Voltages: 12 ~ 80 Vdc Capacitance: 1 ~ 47 pF Max. 8 kV Max. ESD Capability	-40 to 85 °C	<ul style="list-style-type: none"> • Very small case size • Small case sizes • Low capacitance loading • Ideal for high speed signal lines
		EZJ-Z0	0402 (1.0 x 0.5 x 0.5)	Varistor Voltages: 12 ~ 170 Vdc Capacitance: 1 ~ 220 pF Max. 8 kV Max. ESD Capability		
		EZJ-Z1	0603 (1.6 x 0.8 x 0.8)	Varistor Voltages: 12 ~ 170 Vdc Capacitance: 1 ~ 330 pF Max. 8 kV Max. ESD Capability		
	Surface Mount	EZJ-ZS	0504 (1.37 x 1.0 x 0.6)	Varistor Voltages: 12 ~ 170 Vdc Capacitance: 3 ~ 220 pF Max. 8 kV Max. ESD Capability	-40 to 85 °C	<ul style="list-style-type: none"> • 2 Varistors per array • Part count reduction • Board space savings
		EZJ-P0	0402 (1.0 x 0.5 x 0.5)	Varistor Voltages: 8 Vdc Capacitance: 27 ~ 680 pF Max. 8 kV Max. ESD Capability		
		EZJ-S1	0603 (1.37 x 1.0 x 0.6)	Varistor Voltages: 12 ~ 50 VDC Capacitance: 1,800 ~ 8,200 pF Max. 30 kV Max. ESD Capability	-40 to 85 °C	<ul style="list-style-type: none"> • High ESD capabilities
EZJ-S2	0805 (2.0 x 1.25 x .85)	Varistor Voltages: 12 ~ 50 VDC Capacitance: 4,700 ~ 22,000 pF Typical 30 kV Max. ESD Capability				
Zinc-oxide	Leaded	ERZ-VF	Molded Case (6.0 x 8.0 x 3.2)	Varistor Voltages: 22 ~ 470 Vdc Max. Peak Currents: 125 to 300 A	-40 to 85 °C	<ul style="list-style-type: none"> • Flow (wave) / Reflow soldering • UL (Pending)
		ERZ-VD	5 to 20 mm Diameter Disc	Varistor Voltages: 18 to 1,800 Vdc Max. Peak Currents: 125 to 6,500 A	-40 to 85 °C	<ul style="list-style-type: none"> • Large energy handling capabilities • UL / VDE / CSA Safety Certifications • QS9000

Multi-layer NTC Thermistors

Series	Appearance	Case Size (EIA) LxWxH (mm)	Electrical Characteristics	Operating Temperature	Features
ERT-JZ		0201 (0.6 x 0.3 x 0.3)	Nominal Resistance @ 2K ~ 100K Ω	-40 to 125°C	<ul style="list-style-type: none"> • Surface Mount 0201, 0402, 0603 • Highly Reliable • Multi-layer & Monolithic available • Lead Free (RoHS)
ERT-J0		0402 (1.0 x 0.5 x 0.5)	Nominal Resistance @ 22 ~ 470K Ω	Power Dissipation 33 mW ~ 100mW	
ERT-J1		0603 (1.6 x 0.8 x 0.8)	Nominal Resistance @ 22 ~ 150K Ω	1 mW/°C ~ 3m W/°C	







Electromechanical






Light Touch Switches







Type	Series	Appearance	L x W x H (mm)	Operating Force	Features
Top Push	EVP-AF		3.0 x 2.6 x 0.65	1.6 N (160 gf)	<ul style="list-style-type: none"> Built-in actuator for consistent tactile performance World's smallest with actuator
Top Push	EVP-AA		3.5 x 2.9 x 1.4 3.5 x 2.9 x 1.7	1.0 N (100 gf) 1.6 N (160 gf) 2.4 N (240 gf) 3.5 N (350 gf) 5.0 N (500 gf)	<ul style="list-style-type: none"> Super small-sized, thin profile J-bent terminal Wide range of operating force Long operating life
Top Push	EVQ-P6		4.1 x 4.1 x 0.38 4.1 x 4.1 x 0.58	1.0 N (100 gf) 1.3 N (130 gf) 1.6 N (160 gf) 2.4 N (240 gf)	<ul style="list-style-type: none"> Compact/Thin Profile Long-life: 1,000,000 cycles min. Optional push-plate for improved actuation
Top Push	EVQ-PQ		4.5 x 4.5 x 0.55	1.6 N (160 gf) 2.4 N (240 gf)	<ul style="list-style-type: none"> Thin Profile Sealing film for dust resistance
Top Push	EVQ-P2 EVQ-3P2		4.7 x 3.5 x 2.5 4.7 x 3.5 x 2.1	1.0 N (100 gf) 1.6 N (160 gf) 2.4 N (240 gf) 2.5 N (250 gf) 3.5 N (350 gf) 5.0 N (500 gf)	<ul style="list-style-type: none"> J-bent terminals Ground terminal optional Middle Push: 0.7 mm Short Push: 0.25 mm
Top Push	EVQ-PL		4.9 x 4.9 x 0.8 4.9 x 4.9 x 1.5	1.0 N (100 gf) 1.6 N (160 gf) 2.6 N (260 gf)	<ul style="list-style-type: none"> Optional push-plate for improved actuation GND terminal included
Top Push	EVQ-P0 EVQ-Q2		6.5 x 6.0 x 2.0 6.5 x 6.0 x 2.5 6.5 x 6.0 x 3.1	0.5 N (50 gf) 1.3 N (130 gf) 1.6 N (160 gf) 2.6 N (260 gf) 3.5 N (350 gf) 5.0 N (500 gf)	<ul style="list-style-type: none"> Low cost Wide selection of height and force Wide push plate for reliable actuation Over-stroke & GND type available Long operating life
Double Action	EVQ-3P EVQ-PR		6.0 x 6.0 x 0.9 6.0 x 6.0 x 1.05	1st 0.7 N, 2nd 2.6 N 1st 1.0 N, 2nd 2.6 N	<ul style="list-style-type: none"> Double action for Camera shutter function Push plate, Boss & Ground as options
Side Operated	EVQ-P7		3.5 x 2.9 x 1.35	1.6 N (160 gf) 2.2 N (220 gf)	<ul style="list-style-type: none"> High impact resistance Boss and L-terminal available
Side Operated	EVQ-PU		4.7 x 3.5 x 1.65	1.6 N (160 gf) 2.2 N (220 gf)	<ul style="list-style-type: none"> High impact resistance Straight or J-bent terminals
Side Operated	EVQ-P4 EVQ-P8		6.2 x 3.5 x 3.0 6.2 x 3.5 x 3.4	1.0 N (100 gf) 1.6 N (160 gf) 2.4 N (240 gf) 2.5 N (250 gf) 3.5 N (350 gf) 5.0 N (500 gf)	<ul style="list-style-type: none"> Optional edge mount for ultra high impact resistance 0.25 mm, 0.70 mm travel Life: 200 K to 1 Million cycles
Side Operated	EVQ-PS		6.1 x 4.0 x 1.8	1.6 N (160 gf) 2.2 N (220 gf)	<ul style="list-style-type: none"> Straight or J-bent terminals With or without positioning boss
Long Travel	EVQ-P1 EVQ-9P		6.1 x 6.0 x 5.0	2.0 N (200 gf) 2.2 N (220 gf) 2.5 N (250 gf) 3.5 N (350 gf)	<ul style="list-style-type: none"> Push travel: 1.0 mm, 1.3 mm Popular for automotive applications J-bent terminal Large push plate for superior actuation
Long Travel	EVQ-Q1		8.5 x 8.5 x 6.5	4.0 N (400 gf) 5.0 N (500 gf)	<ul style="list-style-type: none"> Ultra high force Popular for automotive applications Large push plate for superior actuation J-Bent Terminal
Center Space, Long Travel	EVP-AD		9.8 x 10.15 x 4.6	4.0 N (400 gf)	<ul style="list-style-type: none"> World's first open Center Space for LED Long travel of 1.0mm 100K life
5 Way	EVQ-WH		6.0 x 3.5 x 4.36	1.0 N (100 gf) 1.6 N (160 gf) 2.4 N (240 gf)	<ul style="list-style-type: none"> Compact and thin profile Optional boss for stability
5 Way	EVQ-Q7		7.7 x 7.7 x 1.75	Push: 2.6 N Leaning: 1.3 N	<ul style="list-style-type: none"> Compact and thin profile Long life Dust-proof structure
Top Push	EVQ-PA EVQ-PB		6.0 x 6.0 x 4.3 6.0 x 6.0 x 5.0 6.0 x 6.0 x 7.0 6.0 x 6.0 x 9.5	1.0 N (100 gf) 1.3 N (130 gf) 1.6 N (160 gf) 2.6 N (260 gf)	<ul style="list-style-type: none"> Without ground terminal (EVQ-PA) With ground terminal (EVQ-PB)
Top Push	EVQ-2		6.0 x 6.0 x 9.5	2.6 N (260 gf)	<ul style="list-style-type: none"> With or without ground terminal Wide selection of height and force
Top Push	EVQ-PE/ PJ/PN/5P		6.0 x 3.5 x 4.3 6.0 x 3.5 x 5.0	1.0 N (100 gf) 1.6 N (160 gf) 2.4 N (240 gf)	<ul style="list-style-type: none"> Narrow width for space saving SMT, bulk, radial-tape terminal types available
Top Push	EVQ-11		6.0 mm dia. x 4.3 6.0 mm dia. x 5.0 6.0 mm dia. x 7.0 6.0 mm dia. x 9.5	1.0 N (100 gf) 1.3 N (130 gf) 1.6 N (160 gf) 2.6 N (260 gf)	<ul style="list-style-type: none"> Radial Taping Forged terminals to improve mounting efficiency Round shape for improved packaging density
Top Push	EVQ-P0		6.2 x 6.2 x 7.0	0.74 N (74 gf) 1.3 N (130 gf)	<ul style="list-style-type: none"> Knob shape: De-centering, centering Ideal for frequent usage such as mouse button
Top Push	EVQ-PV		6.1 x 6.0 x 5.0	2.0 N (200 gf) 2.2 N (220 gf) 2.5 N (250 gf) 3.5 N (350 gf)	<ul style="list-style-type: none"> Push travel: 1.0 mm, 1.3 mm Forged terminals Large push plate for superior actuation
Side Operated	EVQ-PC EVQ-PF		PC 7.5 x 7.1 x 9.25 PF { 7.5 x 7.1 x 7.15 7.5 x 7.1 x 7.85 7.5 x 7.1 x 9.85 7.5 x 7.1 x 12.35	1.0 N (100 gf) 1.3 N (130 gf) 1.6 N (160 gf) 2.6 N (260 gf)	<ul style="list-style-type: none"> Without ground terminal Bulk (EVQ-PF) or radial taping (EVQ-PC) Wide selection of height and force
Long Travel	EVQ-QJ		8.0 x 8.0 x 5.0 8.0 x 8.0 x 5.5 8.0 x 8.0 x 6.1	0.8 N (80 gf) 1.3 N (130 gf) 2.5 N (250 gf)	<ul style="list-style-type: none"> Push travel: 1.0mm, 1.2mm, 1.75mm Long life: Self Cleaning Quiet operation





Surface Mount

Through-Hole

	Type	Series	Appearance	Dimensions (mm)	Operating Force	Features
Detectors	1HW Detector	ESE-23		Mounting height: 1.5 mm Outer dimensions: 5.0 mm x 4.4 mm	300 mN (30 gf)	<ul style="list-style-type: none"> • Small/thin profile • Long over-travel • Usable as an operation switch (an input device)
	2W Detector	ESE-24		Outer dimensions: 7.5 mm x 3.0 mm x 5.6 mm 7.5 mm x 4.65 mm x 5.6 mm	350 mN (35 gf)	<ul style="list-style-type: none"> • Compact/thin profile • Long over-travel • Usable as an operation switch (an input device)
	2 mm Size Type 2N	ESE-22		Mounting height: 4.1 mm Vertical or horizontal	300 mN (30 gf)	<ul style="list-style-type: none"> • Wiping contact construction • Operable in two directions: X-X or Y-Y • Extremely thin profile, SMD
	2 mm Size Type 2NV	ESE-21		Mounting height: 2.3 mm Outer dimensions: 3.4 mm x 3.8 mm	300 mN (30 gf)	
	5 mm Size Type 5N	ESE-11		Mounting height: 4.9 mm	350 mN (35 gf)	<ul style="list-style-type: none"> • Self-wiping leaf spring contact construction • Pole position: 1 pole, 1 position
	Super Thin Type	ESE-13 ESE-18		Mounting height: 1.2 mm Travel: 1.5 mm	300 mN (30gf)	<ul style="list-style-type: none"> • For horizontal and vertical mounting (ESE-13) • For left and right side operation (ESE-18)

	Type	Series	Appearance	Life (cycles)	Rotation Torque	Features
Encoders	12 mm Square GS Encoders	EVE-G EVE-H EVE-J EVE-K EVE-L		30,000 (std. type) 15,000 (high rotation torque)	3 to 20 mN-m 10 to 50 mN-m	<ul style="list-style-type: none"> • Heavy rotation torque optional • Various shaft/bushing types available • Integrated push switch optional
	11 mm Square GS Encoders	EVE-R EVE-V		30,000	3 to 20 mN-m	<ul style="list-style-type: none"> • Low profile • Reflow Type 3.5 mm • Through-hole type 4 mm • Integrated push switch optional
	16 mm Square High Grade	EVE-P		1,000,000	3 to 25 mN-m	<ul style="list-style-type: none"> • Smooth operating feel with minimal wobble • Integrated Switch • Long Life: 1,000,000 cycles minimum
	Edge Drive Jog	EVQ-WK		100,000	1 to 10 mN-m 4.5 N (push-on)	<ul style="list-style-type: none"> • 15 detents with excellent tactile response • Push-on switch with tactile response • Compact size, thin profile • Reflow soldering available • Anti-electrostatic measures available
	Center Space	EVQ-V/W		30,000	3 to 20 mN-m	<ul style="list-style-type: none"> • Open center space for LED and switch • Allows for large knob design • Allows for transparent shaft for superior lighting effect

	Type	Series	Appearance	Life (cycles)	Rotation Torque	Features
Potentiometers	7mm Thumbwheel	EVL-HFA		10,000	0.5 to 6 mN-m	<ul style="list-style-type: none"> • Dust-Proof Molded • Compact Size
	9mm Rotary	EVU-E/F		10,000	1 to 20 mN-m	<ul style="list-style-type: none"> • Multiple Bushing & Height Configurations • Midpoint detent optional
	12 Rotary	EVJ-01/02		15,000	2 to 20 mN-m	
	12mm Dual Rotary	EVJ-C/Y		15,000	2 to 20 mN-m	<ul style="list-style-type: none"> • Dual output with accurate tracking
	Center Space	EWV-Y		30,000	20, 25 or 30 mN-m	<ul style="list-style-type: none"> • Large diameter with smooth rotation • LED integration optional
	10mm Sensor	EVWAE		1,000,000	3 mN-m max.	<ul style="list-style-type: none"> • Low profile, small size, long life • <3% linearity

	Type	Series	Appearance	Life (cycles)	Features
Faders for Audio Mixers	Standard	EWA-K/M/N/P/Q		30,000	<ul style="list-style-type: none"> • Compact size and wave-soldering type available • High reliability • Available with: 15.0, 20.0, 30.0, 45.0 and 60.0 mm travel
		EWA-P1/Q1		30,000	<ul style="list-style-type: none"> • Excellent operational feel • Low noise, long operating life, highly accurate attenuation • Light operating force available
	Thin	EVA(B) JQ / NA		50,000	<ul style="list-style-type: none"> • Thin and compact design: 8 mm body height & 15 mm width • Light sliding force and smooth operability • Highly accurate attenuation characteristics: more than 100dB max.
	Mono	EVA-NF EVA-NE		30,000	<ul style="list-style-type: none"> • Slim type fader series: 9 mm width; 8 mm height • Excellent cost performance

Wireless Modules

ISM

Bluetooth

nanoLOC

Mesh
Networking

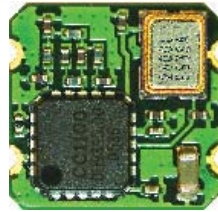
Z-Wave

Series	Appearance	Dimensions (mm)	Receiver Sensitivity	Operating Temperature	Max. Output Pwr	Power Supply	Frequency Range	Number of I/Os	Interfaces	Max. Data Rate
PAN2341		20.0 x 10.4 x 2.8	-110 dBm	-40 to + 85 °C	5 dBm	2.1 to 3.6 V	300 - 1000 MHz	5	GPIO	76.8 Kbits/s
PAN2355		8.0 x 8.2 x 1.9	-100 dBm	-40 to + 85 °C	6 dBm	1.8 to 3.6 V	300 - 1000 MHz	-	SPI	500 Kbits/s
PAN2450		30.0 x 20.0 x 3.5	-92 dBm	-40 to + 85 °C	6 dBm	2.4 to 3.6 V	2.4 GHz	7	SPI, GPIO	153.64 Kbits/s
PAN2551		26.5 x 20.0 x 3.0	-98 dBm	-40 to + 85 °C	0 dBm	2.1 to 3.4 V	2.4 GHz	29	GPIO, 2x UART	250 Kbits/s
PAN3550		26.0 x 20.3 x 3.0	-100 dBm	-40 to + 85 °C	6 dBm	1.8 to 3.6 V	300 - 1000 MHz	14	GPIO, I2C, 2x UART	500 Kbits/s
PAN5460		38.0 x 22.0 x 3.5	-92 dBm	-40 to + 85 °C	6 dBm	2.4 to 3.6 V	2.4 GHz	23	GPIO, 2x UART, I2C, PWM	2000 Kbits/s
PAN1310		11.6 x 8.7 x 1.8	-86 dBm	-40 to + 85 °C	3 dBm	2.7 to 3.6 V	2.4 GHz	-	-	3 Mbits/s
PAN1311		11.6 x 8.7 x 1.8	-86 dBm	-40 to + 85 °C	3 dBm	2.7 to 3.6 V	2.4 GHz	-	SWOP	3 Mbits/s
PAN1450		18.7 x 13.4 x 2.2	-86 dBm	-25 to + 85 °C	4 dBm	3.0 to 3.6 V	2.4 GHz	30	GPIO, USB, PCM, UART, SPI, JTAG	723.2 Kbits/s
PAN1550		22.8 x 20.0 x 4.0	-86 dBm	-25 to + 70 °C	4 dBm	3.3 V	2.4 GHz	30	GPIO, USB, PCM, UART, SPI, JTAG	723.2 Kbits/s
PAN5375		29 x 15 x 4	-97 dBm	-40 to + 85 °C	+20 dBm	2.3 ~ 2.7 V	2.4 GHz	-	SPI, HCI	-
PAN4555		16.4 x 12.2 x 2.1	-98 dBm	-40 to + 85 °C	0 dBm	2.0 to 3.4 V	2.4 GHz	19	GPIO, UART, SPI	250 Kbits/s
PAN4570		26.5 x 20.0 x 3.0	-97 dBm	-40 to + 85 °C	5 dBm	2.1 to 3.6 V	2.4 GHz	17	GPIO, UART, SPI	250 Kbits/s
PAN4661		35 x 15 x 3.5	-105 dBm	-40 to + 85 °C	20 dBm	2.7 ~ 3.3 V	2.4 GHz	33	A/D, VART, I2C, SPI, PWM	250 Kbits/s
PAN4666		35 x 15 x 3.5	-112 dBm	-40 to + 85 °C	20 dBm	2.7 ~ 3.3 V	2.4 GHz	40	A/D, VART, I2C, PWM	2000 Kbits/s
PAN8550		27.0 x 13.0 x 3.0	-92 dBm	-20 to + 70 °C	3 dBm	2.1 to 3.6 V	868.42 / 908.42 MHz	10	GPIO, ADC, UART, PWM, Triac	40 Kbits/s

PAN2341



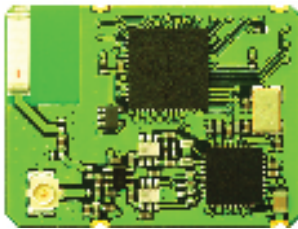
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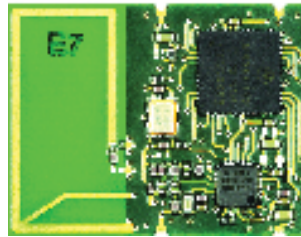
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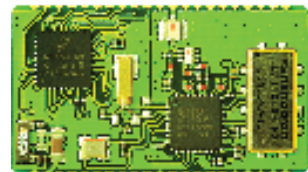
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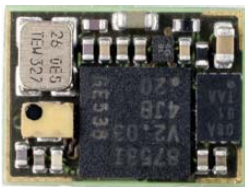
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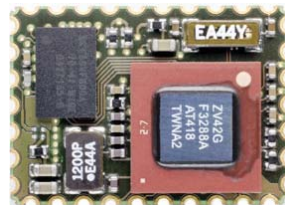
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PAN1310/PAN1311



PAN1450



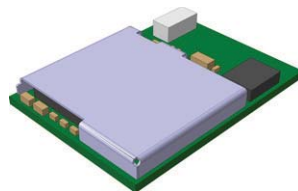
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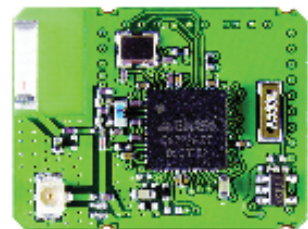
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PAN4555



PAN4570



PAN8550

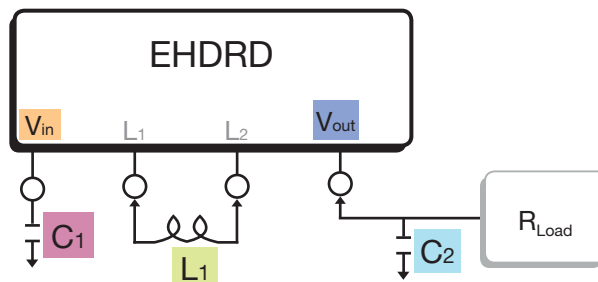


DC-DC Converters for AC Applications

P/N	Input Voltage			Output Voltage			Output Current (Max.)	Power mWatts	Input Capacitor (μ F)	Output Capacitor (μ F)	Inductor P/N
	Vin (DC)			Vo (DC)							
	(Min.)	(Typ.)	(Max.)	(Min.)	(Typ.)	(Max.)					
EHD-RD3317	144	170	195	4.7	5	5.4	90 mA	450	22	100	ELC-11D561F
EHD-RD3305	113	141	170	5.6	5.9	6.1	200 mA	1180	33	220	ELC-11D471F
EHD-RD3323	90	141	170	11	12	13	100 mA	1200	33	100	-
EHD-RD3338	113	141	170	14	15	16	80 mA	1200	33	100	-
EHD-RD3333	225	282	338	14	15	16	100 mA	1500	33	100	ELC-12D681E
EHD-RD3311	113	-	203	4.7	5.1	5.4	300 mA	1530	33	330	ELC-12D471E
EHD-RD3356	113	141	170	18.5	20	21.5	80 mA	1600	33	100	-
EHD-RD3353	113	141	170	18.5	20	21.5	100 mA	2000	33	100	-
EHD-RD3360A	250	310	391	22	24	26	100 mA	2400	33	100	ELC-12D222E
EHD-RD3324Y	113	141	190	11	12	13	200 mA	3000	33	220	ELC-11D681F
EHD-RD3334	113	141	170	14	15	16	200 mA	3000	33	220	ELC-11D681F
EHD-RD3326	113	141	170	11	12	13	300 mA	3600	33	220	ELC-12D561E
EHD-RD3357	113	141	195	18.5	20	21.5	200 mA	4000	33	220	ELC-11D122F
EHD-RD3332A	105	141	170	14	15	16	300 mA	4500	33	220	ELC-12D561E
EHD-RD3371A	225	282	338	11	12	13	400 mA	4800	33	470	ELC-12D102E
EHD-RD3362B	113	141	170	23	24.6	25.5	200 mA	4920	33	220	ELC-11D102F
EHD-RD3325M	113	141	170	11	12	13	500 mA	6000	47	470	ELC-12D331E
EHD-RD3354	113	141	170	19	20	21	300 mA	6000	33	470	ELC-12D102E
EHD-RD3306	-113	-141	-170	-4.75	-5.1	-5.35	-30 mA	153	33	100	-
EHD-RD3359	-85	-141	-170	-4.7	-5	-5.3	-200 mA	1000	33	150	ELC-11D681F
EHD-RD3318	-113	-141	-170	-4.5	-5	-5.5	-300 mA	1500	33	220	ELC-12D471E
EHD-RD3381	-113	-141	-170	-11	-12	-13	-150mA	1800	22	150	ELC-11D102F
EHD-RD3320	-113	-141	-170	-11	-12	-13	-200 mA	2400	33	220	ELC-11D821F
EHD-RD3370	-113	-141	-170	-11	-12	-13	-250 mA	3000	22	220	ELC-11D102F
EHD-RD3470	-113	-141	-170	-31.5	-32	-32.5	-100 mA	3200	33	100	ELC-11D152F
EHD-RD3363	-113	-141	-200	-22.5	-24	-25.5	-180 mA	4320	33	220	ELC-11D102F
EHD-RD3471	-113	-141	-170	-31.4	-32	-32.6	-150 mA	4800	33	330	ELC-11D152F

Positive

Negative



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