

■ Features

- Small size and light weight
- Reliability, high quality
- Chip resistor of the wide terminal type

■ Application

- Navigation equipment
- Power equipment: Power supply, Illumination equipment
- Indoor lighting, Central door locking

■ Standard Electrical Specifications

Item Type	Rated Power at 70°C	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/°C)	Resistance Range	
					F(±1%)	J(±1%)
ETRW62(0612)	0.75W	200V	400V	±400	$1\Omega \leq R < 10\Omega$	
				±100	$10\Omega \leq R \leq 10M\Omega$	
ETRW02(1020)	1W	200V	400V	±400	$1\Omega \leq R < 10\Omega$	
				±100	$10\Omega \leq R \leq 10M\Omega$	
ETRW82(1218)	1W	200V	400V	±400	$1\Omega \leq R < 10\Omega$	
				±100	$10\Omega \leq R \leq 10M\Omega$	
ETRW15(1225)	2W	200V	400V	±400	$1\Omega \leq R < 10\Omega$	
				±100	$10\Omega \leq R \leq 10M\Omega$	
ETRW23(2030)	3W	200V	400V	±400	$1\Omega \leq R < 10\Omega$	
				±100	$10\Omega \leq R \leq 10M\Omega$	

- For non-standard parts, please contact our sales dept.
- Operating Temperature Range :-55°C + 155°C

■ Low Ohm Chip Resistor Electrical Specifications

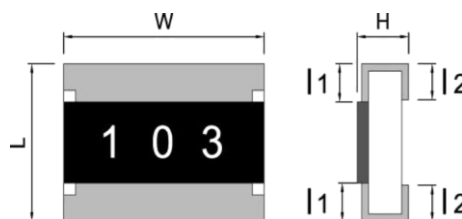
Item Type	Rated Power at 70°C	Max Working Voltage	Max Overload Voltage	T.C.R. (PPM/°C)	Resistance Range(Ω)	
					F(±1%)	J(±1%)
ETRW62(0612)	0.75W	0.087V- 0.86V	2.154V	±1800	10mΩ ≤ R < 50mΩ	
				±800	50mΩ ≤ R < 100mΩ	
				±500	100mΩ ≤ R < 1Ω	
ETRW02(1020)	1W	0.10V-0.99V	2.475V	±1800	10mΩ ≤ R < 50mΩ	
				±800	50mΩ ≤ R < 100mΩ	
				±500	100mΩ ≤ R < 1Ω	
ETRW82(1218)	1W	0.1V-0.99V	2.475V	±1800	10mΩ ≤ R < 50mΩ	
				±800	50mΩ ≤ R < 100mΩ	
				±500	100mΩ ≤ R < 1Ω	
ETRW15(1225)	2W	0.14V-1.41V	3.518V	±1800	10mΩ ≤ R < 50mΩ	
				±800	50mΩ ≤ R < 100mΩ	
				±500	100mΩ ≤ R < 1Ω	

- For non-standard parts, please contact our sales dept.
- Operating Temperature Range :-55°C + 155°C

■ Jumper Electrical Specifications

Type	ETRW62(0612)	ETRW02(1020)	ETRW82(1218)	ETRW15(1225)	ETRW23(2030)
Jumper Resistance Value	20mΩMax				
Jumper Rated Current	4A	6A	6A	8A	10A
Max. Over Load Current<1 Second and 1 times	15A	22A	22A	30A	35A

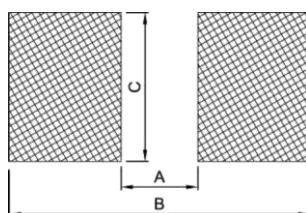
■ Type Dimension



■ Dimension(Unit: mm)

Type	L	W	H	I1	I2
ETRW62(0612)	1.60±0.20	3.20±0.20	0.55±0.10	0.30±0.20	0.50±0.20
ETRW02(1020)	2.50±0.20	5.00±0.20	0.55±0.10	0.40±0.20	0.75±0.20
ETRW82(1218)	3.10±0.10	4.60±0.10	0.55±0.05	0.40±0.20	0.40±0.20
ETRW15(1225)	3.20±0.20	6.50±0.20	0.55±0.20	0.40±0.20	0.75±0.20
ETRW23(2030)	5.10±0.10	7.60±0.10	1.06±0.10	0.80±0.20	0.80±0.20

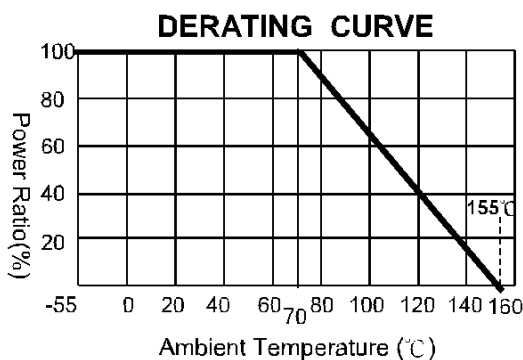
■ Recommend Land Pattern Design



■ Dimension

Type	ETRW62(0612)	ETRW02(1020)	ETRW82(1218)	ETRW15(1225)	ETRW23(2030)
A	0.60	0.75	2.04	0.85	3.50
B	2.90	3.40	4.24	3.70	7.50
C	3.20	5.00	4.80	6.40	7.80

■ Power Derating Curve



Power rating or current rating is in the case based on continuous full-load at ambient temperature of 70°C . For operation at ambient temperature in excess of 70°C , the load should be derated in accordance with figure of derating Curve.

■ Voltage Rating or Current Rating

Resistance Range: $\geq 1\Omega$

Rated Voltage: The resistor shall have a DC continuous working voltage or a RMS AC continuous working voltage at commercial-line frequency and wave form corresponding to the power rating, as determined formula as following.

$$E(RCWV) = \sqrt{P * R}$$

E=Rated voltage(V)

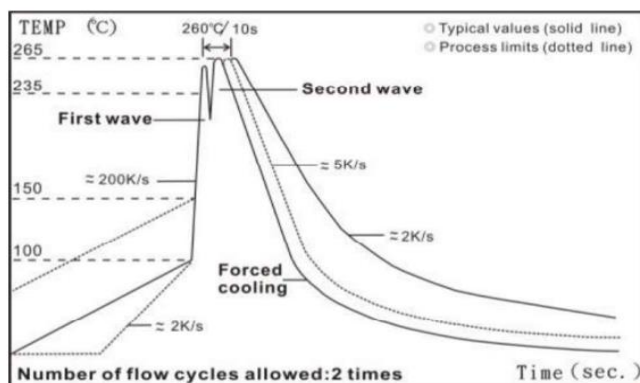
P=Power Rating(W)

R=Nominal Resistance(Ω)

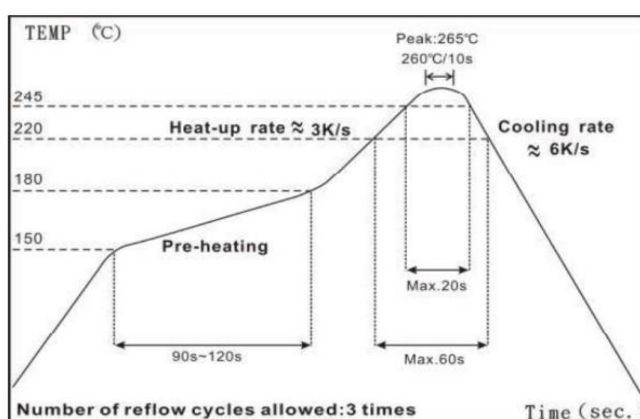
■ Reliability Test and Requirement

Test Item	Test Method	procedure	Requirements
Temperature Coefficient of Resistance (T.C.R)	JIS-C-5201-1 4.8 IEC-60115-1 4.8	At 25℃/-55℃ and 25℃/+155℃, 25℃ is the reference temperature	As spec
Short Time Overload	JIS-C-5201-1 4.13 IEC-60115-1 4.13	2.5 times RCWV or Max. Overload voltage whichever is less for 5 seconds. Jumper : Over Load Current for 5 seconds 0612=10A 1020=15 1218=15A 1225=20A 2030=25A	1% and below : $\pm(1.0\%+0.05\Omega)$ 2% 5% : $\pm(2.0\%+0.10\Omega)$ Jumper : Max 0.02 Ω after test
Leaching	JIS-C-5201-1 4.18 IEC-60068-2-58 8.2.1	260 $\pm$ 5℃ for 30 seconds.	Individual leaching area $\leq$ 5% Total leaching area $\leq$ 10%
Resistance to Soldering Heat	JIS-C-5201-1 4.18 IEC-60115-1 4.18	260 $\pm$ 5℃ for 10 seconds.	1% and below : $\pm(0.5\%+0.05\Omega)$ 2% 5% : $\pm(1.0\%+0.10\Omega)$
Rapid Change of Temperature	JIS-C-5201-1 4.19 IEC-60115-1 4.19	-55℃ to +155℃, 5 cycles	1% and below : $\pm(1.0\%+0.05\Omega)$ 2% 5% : $\pm(2.0\%+0.10\Omega)$
Resistance to Solvent	JIS-C-5201-1 4.29	The tested resistor be immersed into isopropyl alcohol of 20-25℃ for 60 secs. Then the resistor is left in the room for 48 hrs.	1% and below : $\pm(0.5\%+0.05\Omega)$ 2% 5% : $\pm(0.5\%+0.05\Omega)$ Jumper : Max 0.02 Ω after test
Damp Heat with Load	JIS-C-5201-1 4.24 IEC-60115-1 4.24	40 $\pm$ 2℃ , 90-95% R.H. RCWV or Max. working voltage whichever is less for 1000hrs with 1.5hrs "ON" and 0.5hr "OFF"	1% and below: $\pm(1.0\%+0.05\Omega)$ 2% 5%: $\pm(2.0\%+0.05\Omega)$ Value<1 Ω : $\pm(2.0\%+0.05\Omega)$ Jumper: Max 0.05 Ω after test
Load Life(Endurance)	JIS-C-5201-1 4.25 IEC-60115-1 4.25.1	70 $\pm$ 2℃ , RCWV or Max. working voltage whichever is Less for 1000hrs with 1.5hrs "ON" and 0.5hr "OFF"	1% and below: $\pm(1.0\%+0.05\Omega)$ 2% 5%: $\pm(3.0\%+0.05\Omega)$ Value<1 Ω : $\pm(2.0\%+0.05\Omega)$ Jumper: Max 0.05 Ω after test
Insulation Resistance	JIS-C-5201-1 4.6 IEC-60115-1 4.6	Apply 100VDC for 1 minute.	$\geq$ 10G Ω
Bending Strength	JIS-C-5201-1 4.33 IEC-60115-1 4.33	Bending once for 5 seconds D:0612 1020 1218 1225 2030=2mm	1% and below : $\pm(1.0\%+0.05\Omega)$ 2% 5% : $\pm(1.0\%+0.05\Omega)$

■ Wave Solder Temperature condition



■ Solder reflow Temperature Condition



■ Parts Number System

ETRW	15	S	100R	F	P	04	O
①	②	③	④	⑤	⑥	⑦	⑧

①: ETRW Series

②: Size Code: 36=0603, 58=0508, 62=0612, 02=1020, 82=1218, 15=1225, 23=2030

③: Power Rating:

N=1/20W, Y=1/16W, X=1/10W, W=1/8W, M=1/6W, P=1/5W, V=1/4W, O=1/3W; U=1/2W, Q=3/4W, L=3/10W

T=1W, A=1.5W, S=2W, B=2.5W, R=3W, C=3.5W, H=4W, D=5W, G=6W, E=7W

④: Resistor Value: 10mΩ=R010; 100mΩ=R100; 1K=1K00; 1R=1R00; 1M=1M00

⑤: Tolerance Code: J = ± 5%, F = ± 1%

⑥: Tape & Reel Packing :P=Paper Taping(0612) E=Embossed Taping(1020-2030)

⑦: Reel quantity: 01=1000PCS ;04=4000PCS; 05=5000PCS

⑧: Other



■ Packaging Information

Type	Size	
ETRW62(0612)	7"	5000pcs/reel
ETRW02(1020)	7"	4000pcs/reel
ETRW82(1218)	7"	4000pcs/reel
ETRW15(1225)	7"	4000pcs/reel
ETRW23(2030)	7"	1000pcs/reel