

◆ General

● Scope

This specification is available for metal alloy Low-Resistance Resistor manufactured by ELLON Electro-Mechanics co., Ltd.

● Quality

The resistor is manufactured by highly quality-controlled process and guaranteed high reliability. It meets RoHS & Halogen-Free requirement.

● Standard measuring conditions

Temperature $20\pm 2^{\circ}\text{C}$, Humidity $65\pm 5\%$. Being no doubt about the judgment, measurements can be made Within the following temperature $5\sim 35^{\circ}\text{C}$, Humidity $45\sim 85\%$.

◆ Application

- Inverter/Converter
- Power supply
- Consumer electronics
- Notebook
- Battery management system

◆ Specification

- Surface mount 0603/0805/1206 case sizes
- Resistance values up to $20\text{m}\Omega$
- High precision current sensing and voltage division
- Resistance tolerance $0.5\%(D)$, $\pm 1\%(F)$,
- Low resistance / Low TCR

◆ Part number system

EMC	06	F	0W5	R002	M	D	s
Product Type	Size (Inch)	Resistor Tolerance	Rated Power	Resistor Value	Material	Quantity (Pcs)	Remarks
EMC	06=0603 08=0805 16=1206 58=0508 62=0612	D = $\pm 0.5\%$ F = $\pm 1\%$	0W5=0.5Watt W75=0.75 Watt 1W0=1.0Watt	R001=1m Ω --- R005=5m Ω R020=20m Ω	M:MnCu	E=5000	S=Standard G=High power W=Wide terminal

(1) EMC Series

(2): Size Code: 06=0603, 08=0805, 16=1206, 58=0508, 62=0612

(3): Tolerance Code: D = $\pm 0.5\%$, F = $\pm 1\%$

(4): Power Rating: Ex. 0W5=0.5Watt ; W75=0.75Watt; 1W0=1.0Watt

(5): Resistance Code: 1M50=1.5m Ω R005=5m Ω R010=10m Ω .

(6): Materials: M=MnCu; A=Alloy

(7): Optional piece reel quantity:

(8): Remarks: interior code

◆ SPECIFICATIONS

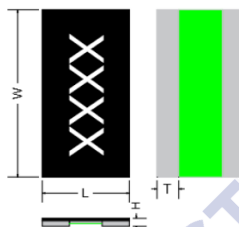
Type	EIA SIZE	Rating Power at 70℃	Material	Resistance Range (mΩ)		T.C.R. (ppm/℃)	Operating Temperature Range (℃)
				0.5%(D)	1.0%(F)		
EMC06	0603	0.5W	MnCu	--	R002-R003	≒±150	-55 ~ + 155
				--	R004-R005	≒±100	
				R005-R020	R006-R020	≒±75	
EMC08	0805	0.5W		--	R001	≒±200	
				--	1M50-R002	≒±100	
				--	R003-R005	≒±75	
				R005-R020	R006-R020	≒±50	
		0.75W		--	R001	≒±200	
				--	1M50-R002	≒±100	
				--	R003-R005	≒±75	
				R005-R020	R006-R020	≒±50	
EMC16	1206	1W		--	R001	≒±100	
				--	1M50-R004	≒±75	
				R005-R020	R005-R020	≒±50	
EMC58	0508	1W		--	R001-R002	≒±100	
				--	R003-R010	≒±75	
EMC62	0612	1W		--	R001-R002	≒±75	
				--	R003-R010	≒±50	

◆ Component Dimensions



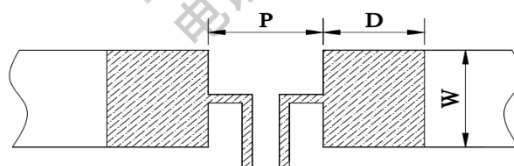
Case Size	EIA SIZE	Rating Power	Resistance Range (Ω)	L	W	A	T
EMC06	0603	0.5W	R002	1.600±0.250	0.800±0.200	0.500±0.150	0.350±0.15
			R003-R004	1.600±0.250	0.800±0.200	0.350±0.150	0.350±0.15
			R005-R020	1.600±0.250	0.800±0.200	0.320±0.150	0.300±0.15
EMC08	0805	0.5W	R001	2.000±0.254	1.250±0.254	0.650±0.254	0.400±0.20
			1M50-R002	2.000±0.254	1.250±0.254	0.550±0.254	0.400±0.20
			R003-R005	2.000±0.254	1.250±0.254	0.400±0.254	0.400±0.20
			R006-R020	2.000±0.254	1.250±0.254	0.400±0.254	0.400±0.20
		0.75W	R001	2.000±0.254	1.250±0.254	0.650±0.254	0.400±0.20
			1M50-R002	2.000±0.254	1.250±0.254	0.550±0.254	0.400±0.20
			R003-R005	2.000±0.254	1.250±0.254	0.400±0.254	0.400±0.20
			R006-R020	2.000±0.254	1.250±0.254	0.400±0.254	0.400±0.20

EMC16	1206	1W	R001	3.200±0.254	1.600±0.254	1.20±0.254	0.40±0.20
			1M50-R002	3.200±0.254	3.200±0.254	1.00±0.254	0.40±0.20
			R002-R004	3.200±0.254	3.200±0.254	0.85±0.254	0.40±0.15
			R005-R020	3.200±0.254	3.200±0.254	0.60±0.254	0.40±0.15



Case Size	EIA SIZE	Rating Power	Resistance Range (Ω)	L	W	H	T
EMC58	0508	1W	R001	1.200±0.250	2.000±0.250	0.500±0.100	0.350±0.15
			R002-R010	1.200±0.250	2.000±0.250	0.450±0.050	0.350±0.15
EMC62	0612	1W	R001	1.600±0.250	3.200±0.250	0.350±0.054	0.40±0.20
			1M50-R025	1.600±0.250	3.200±0.250	0.300±0.054	0.40±0.20

◆ Recommended Solder Pad Layout



Unit:mm

Case Size	EIA Size	Resistance Range (Ω)	P	D	W
EMC06	0603	R002	0.90	1.95	1.74
		R003-R020	1.00	1.85	1.74
EMC08	0805	R001-R020	1.20	1.75	1.74
EMC16	1206	R001-R002	0.80	1.45	1.52
		R003-R005	0.50	1.35	0.92
		R006-R020	0.60	1.30	0.92
EMC58	0508	R001-R010	0.45	0.75	2.30
EMC62	0612	R001-R025	0.60	1.00	3.50

◆ Environmental characteristics

Item	Test Conditions	Reference Standard
Short Time Over Load	P= 2.5Pr ; T=25±2°C , t = 5sec.	IEC60115-1 4.13
Low Temp. Storage	T = -55±2°C ; t = 1000h	IEC60115-1 4.25.1 JIS-C5201 4.25.1
High Temp. Exposure	T = +155±2°C ; t = 1000h	IEC60115-1 4.13 JIS-C5201 4.13

Moisture Load Life (60°C,95%RH)	Vtest = Vmax ; T=60±2°C ; RH=95% ; t= 90min ON , 30min OFF , 1000h	IEC60115-1 4.25.1
Thermal Shock	[-55°C 30min. → R.T. 3min. → +155°C 30min. → R.T. 3min],	IEC60115-1 4.19
Load Life at 70°C	Vtest = Vmax ; T=70±2°C ;t= 90min ON , 30min OFF,1000h	IEC60115-1 4.25.1
Solderability	+245°C ± 5°C, 2 sec. ± 0.5sec.	IEC60115-1 4.17 JIS-C5201 4.17
Resistance to Solder Heat	Through Reflow T= 275±5°C , t =20±1sec.	IEC60115-1 4.18 JIS-C5201 4.18
Mechanical Shock	a =100G , t =11ms, 5 times shock	IEC60115-1 4.21
Substrate Bending	Bending within 2mm	IEC60115-1 4.33 JIS-C5201 4.33
Core Body Strength	Central part pressurizing force:5N ,10 seconds	JIS-C5201-1 4.15
Bending Strength	Bending once 2mm for 10 seconds	JIS-C-5201-1 4.33 IEC-60115-1 4.33

Voltage and Current Ratings: Voltage and current ratings can be calculated for each part number by using the formulas below:

Current Rating Formula: $I = \sqrt{P/R}$

Example: EMC16F0R006MEG

P=1W

R=0.006Ω(6milli-ohm)

$I = \sqrt{P/R} = \sqrt{1.0/0.006} = 12.909A$

Voltage Rating Formula: $V = \sqrt{P * R}$

Example: EMC16F0R006MEG

P=1W

R=0.006Ω(6milli-ohm)

$V = \sqrt{P * R} = \sqrt{1.0 * 0.006} = 0.07745V$

Thermal EMF Characteristics:

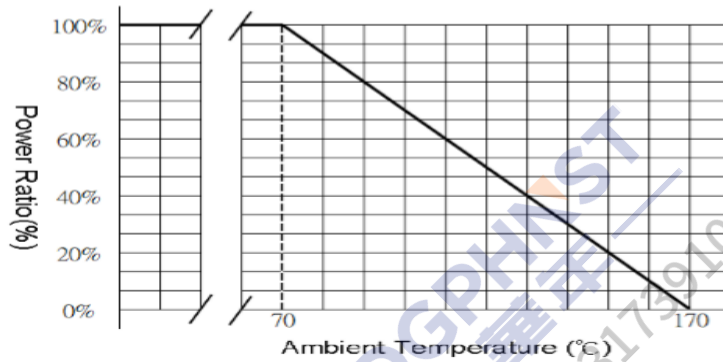
Thermal EMF=-1μV/°C

◆ Performance characteristics

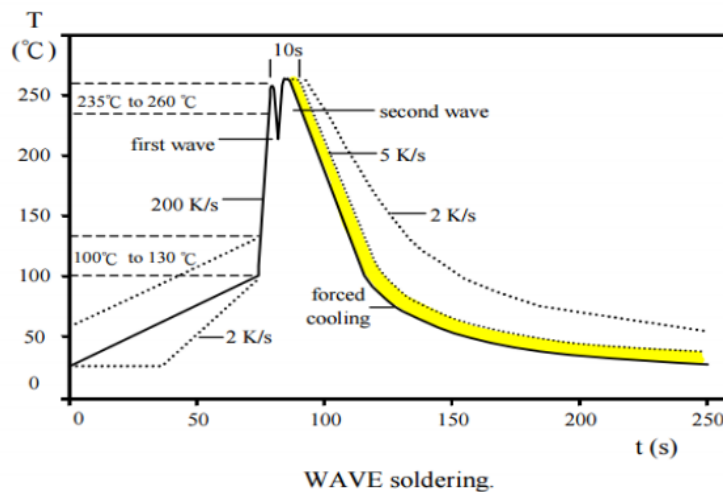
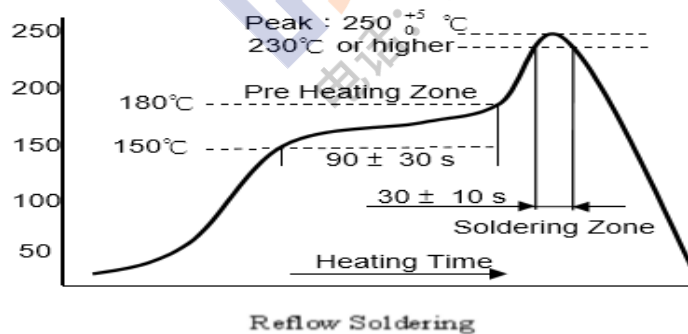
Power Derating Curve

The Operating Temperature Range: $-55^{\circ}\text{C} \sim +155^{\circ}\text{C}$.

For resistors operated in ambient temperatures above 70°C , power rating must be derating in accordance with the curve below



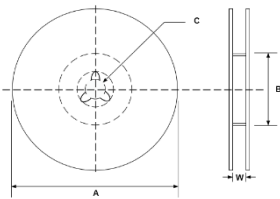
◆ Soldering Profile



◆ Packaging information

REEL DIMENIONS (mm) AND QUANTITY

Type	A	B	C	W	Quantity
EMC06	178 ±2.0	60 ±1.0	13 ±1.0	9.0 ±1.0	5000
EMC08					
EMC16					
EMC58					
EMC62					



◆ Storage Temperature

Temperature 20~30℃, Humidity 40~80%

DGPHYST
— 華年 —
电话: 0755-23173910