

達而特企業股份有限公司

METAL FILM RESISTORS(MF) SPECIFICATION	SPECIFICATION NO.	LGE—MF-01
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1. GENERAL INSTRUCTION:

1-1 SCOPE

This specification applies to the Metal Film Resistor MADE BY LGE ELECTRONICS IND.CORP.

1-2 CLASSIFICATION

Type	number	is	described	as	follows:
<u>MF</u>	<u>1/2W</u>		<u>T</u>	<u>150K OHM</u>	<u>F(±1%)</u>
CLASS	POWER RATING		SHAPE	NOMINAL RESISTANCE VALUE	TOLERANCE

2.NOMINAL RESISTANCE:

The nominal resistance shall be the resistance marked on the resistor body and identified, as a Rule, in units Ω , K Ω , M Ω .

3.NOMINAL RESISTANCE TOLERANCE.

The nominal resistance tolerance is represented in one capital letter selected from F(±1%), D(±0.5%), C(±0.25%), B(±0.1%)

4 RSTING:

MF (METAL FILM FIXED RESISTORS)

STYLE	MAX WORKING	MAX OVERLOAD	RESISTANCE VALUE RANGE
MF1/6W,1/8W,1/16W	200V	400V	10 Ω —1M Ω
MF1/4 W	250V	500V	10 Ω —1M Ω
MF1/2W	350V	700V	10 Ω —1M Ω
MF1W	500V	1000V	10 Ω —1M Ω
MF2W	500V	1000V	10 Ω —1M Ω
MF3W	500V	1000V	10 Ω —1M Ω

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METAL FILM RESISTORS(MF) SPECIFICATION	SPECIFICATION NO.	LGE—MF--02																																						
<p data-bbox="337 470 552 499">4-1. POWER RATING</p> <p data-bbox="315 508 1276 575">power rating is defined as maximum power rating continuously applied under ambient temperature at 70°C .when the ambient temperature exceeds 70°C ,use chart 1.</p> <div data-bbox="386 688 1230 1003"> <table border="1" data-bbox="568 688 1230 934"> <caption>Data points for Chart 1</caption> <thead> <tr> <th>Ambient Temperature (C)</th> <th>Rated Power Ratio (%)</th> </tr> </thead> <tbody> <tr><td>70</td><td>100</td></tr> <tr><td>75</td><td>90</td></tr> <tr><td>80</td><td>80</td></tr> <tr><td>85</td><td>70</td></tr> <tr><td>90</td><td>60</td></tr> <tr><td>95</td><td>50</td></tr> <tr><td>100</td><td>40</td></tr> <tr><td>105</td><td>30</td></tr> <tr><td>110</td><td>20</td></tr> <tr><td>115</td><td>10</td></tr> <tr><td>120</td><td>0</td></tr> <tr><td>125</td><td>0</td></tr> <tr><td>130</td><td>0</td></tr> <tr><td>135</td><td>0</td></tr> <tr><td>140</td><td>0</td></tr> <tr><td>145</td><td>0</td></tr> <tr><td>150</td><td>0</td></tr> <tr><td>155</td><td>0</td></tr> </tbody> </table> </div> <p data-bbox="893 1012 990 1041">CHART 1</p> <p data-bbox="315 1050 544 1079">4-2 RATED VOLTAGE</p> <p data-bbox="451 1087 1003 1188">Rated voltage is defined as the DC or AC(effective Value at commercial frequency example 50 C/S,60 C/S) Voltage when rated power is applied and can be calculated</p> <p data-bbox="467 1197 841 1226">By the following EQUATIONE =√ PR</p> <p data-bbox="451 1234 782 1264">E=RATED VOLTAGE VOLTAGE</p> <p data-bbox="451 1272 743 1302">P=RATED POWER (WATTS)</p> <p data-bbox="451 1310 889 1339">R=NOMINAL RESISTANCE VALUE(OHM)</p> <p data-bbox="451 1348 1036 1486">When the calculated rated voltage exceeds the Maximum usable voltage flue shown in CHART 1,the Maximum usable voltage is defined as the voltage According to the power-decreasing curve shown in CHART1.</p>			Ambient Temperature (C)	Rated Power Ratio (%)	70	100	75	90	80	80	85	70	90	60	95	50	100	40	105	30	110	20	115	10	120	0	125	0	130	0	135	0	140	0	145	0	150	0	155	0
Ambient Temperature (C)	Rated Power Ratio (%)																																							
70	100																																							
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METAL FILM RESISTORS(MF) SPECIFICATION		SPECIFICATION NO.	LGE—MF—03
ITEM (STANDARD)	PERFORMANCE AND/OR QUALITY ACCEPTANCE	TEST METHOD	
Current noise	$R_X < 100\text{Kohm}$ 0.2 $100\text{ Kohm} \leq R_X \leq 1\text{Mohm}$ $0.4 \mu\text{vV}$ $1\text{Mohm} < R_X$ $0.6 \mu\text{vV}$	Use resistor noise tester model 315B Quean-tech laboratories INC.U.S.A.	
Resistance value Vs Temperature Characteristics	$\pm 100\text{PPM}/^\circ\text{C}$	Measure resistance(R_0 ohm)at room temperature(T_0 °C) Measure again the same at 100°C higher than room temperature $\text{PPM} = \frac{R - R_0}{R_0} \times \frac{10^6}{(T_0 + 100) - T_0}$	
Short time overload	The resistance variation shall be with in $\pm(0.5\%+0.05\text{ohm})$ and there shall be no mechanical breakage	Apply DC voltage 2.5times the rated voltage for 5 seconds The leave at room temperature for 30 minutes then measure Max. overload voltage 0.50W—700V(DC)	
Insulation resistance	10,000M ohm or more	Lay the resistor on 90° angle metal V block apply 100V DC between resistor lead and V block for one Minute And measure	
voltage endurance	The resistance variation shall be with in $\pm(0.5\%+0.05\text{ohm})$ and there shall be no mechanical breakage	lay the resistor on the 90° angle metal V block and apply rated AC voltage for one Minute .Test voltage 0.25W—500V(AC) 0.50W—700V(AC)	
Intermittent overload	Resistance variation variation shall be With in $\pm(0.5\%+0.05\text{ohm})$	Apply AC voltage 4 times the rated voltage for 1 second and rest for 25 seconds and repeat this cycle for 10,000±200 times leave resistor 30 minutes at room temperature after test and measure. Maximum voltage for intermittent overload .0.50W—700V(AC)	

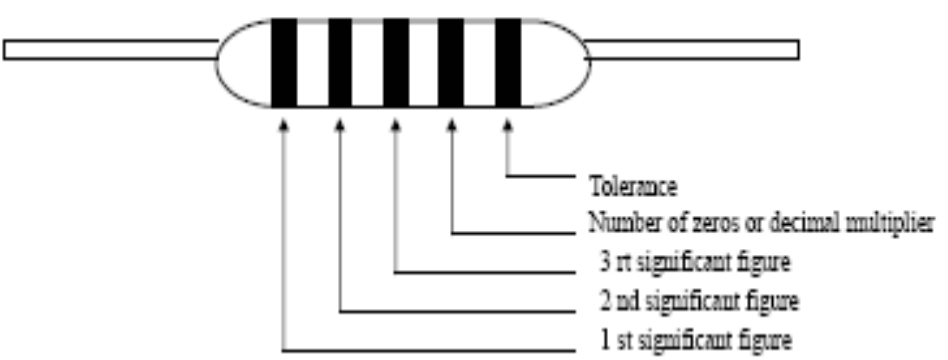
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METAL FILM RESISTORS(MF) SPECIFICATION		SPECIFICATION NO.	LGE—MF—04			
ITEM (STANDARD)	PERFORMANCE AND/OR QUALITY ACCEPTANCE	TEST METHOD				
Terminal strength	Resistance variation shall be with in $\pm(0.5\%+0.05\text{ohm})$ also there shall be on mechanical breakage	Pull test: apply 1kg force to the lead in the direction of lead axis for 30 ± 5 seconds. Bend test apply 500g at 90° angle against the direction of lead axis then bend the lead 90° angle and bend back the lead to make it straight then bend the bend the lead 90° to the opposite direction)				
Vibration (Low Frequency)	Resistance variation shall be With in $\pm(1\%+0.05\text{ohm})$ and there shall be no mechanical breakage	Apply 1.5mm amplitude vibration to there directions perpendicular to each other 2 hours each total 6 hours. vibrating frequency is 10HZ—55HZ—10HZ cycle in in one minute and repeat cycle				
Heat resistively against soldering	Resistance variation shall be With in $\pm(0.5\%+0.05\text{ohm})$ also there shall be no mechanical breakage	Dip the lead into a solder bath having a temperature of $350^\circ\text{C}\pm 10^\circ\text{C}$ up to $4\pm 0.8\text{mm}$ from the body of the resistor and hold it for 3 ± 0.5 seconds leave the resistor at room temperature 3 hours after after test ,then measure				
Solder ability	More than 95% of the surface of the lead Shall be covered by new solder after the Leads are dipped in the solder	Dip the lead into a solder bath having a temperature of $230^\circ\text{C}\pm 5^\circ\text{C}$ up to $4\pm 0.8\text{mm}$ from the body of the resistor and hold it for 5 ± 0.5 seconds then inspect				
Temperature cycle	Resistance variation shall be With in $\pm(0.5\%+0.05\text{ohm})$ also there shall be no mechanical breakage	Sequence	1	2	3	4
		Temperature-	55 $^\circ\text{C}$	25 $^\circ\text{C}$	155 $^\circ\text{C}$	25 $^\circ\text{C}$
		Time	30 Min	10—15 Min	30 Min	10-15 Min
One cycle consist 1-2-3-4 described above test for continuous 5 cycles and leave at room temperature for 1 hour after test,then measure						

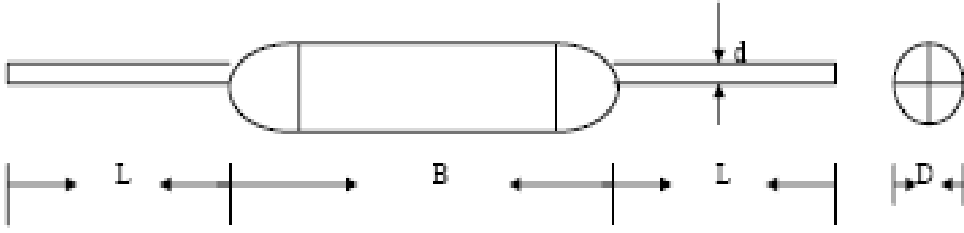
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METAL FILM RESISTORS(MF) SPECIFICATION		SPECIFICATION NO.	LGE—MF--05
ITEM (STANDARD)	PERFORMANCE AND/OR QUALITY ACCEPTANCE	TEST METHOD	
Humidity load test	Resistance variation be With in $\pm(1.5\%+0.05\text{ohm})$ also there shall be no mechanical breakage	In temperature chamber having temperature $40^{\circ}\text{C} \pm 2^{\circ}\text{C}$, relative humidity 90-95%, apply rated voltage 1.5hour and shut voltage 0.5 hour repeat this cycle for 1000 hours,leave in room temperature for 1hour after test,then measure	
Load test	The variation of the resistance shall be With in $\pm(1.5\%+0.05\text{ohm})$ also there shall be no mechanical breakage	In the constant temperature chamber having temperature $70^{\circ}\text{C} \pm 2^{\circ}\text{C}$, apply rated DC voltage for 1.5hour and shut voltage for 0.5 hour and repeat this cycle for 1000 hours,Leave in room temperature 1hour after test.Then measure	

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METAL FILM RESISTORS(MF) SPECIFICATION	SPECIFICATION NO.	LGE—MF--06			
5. Marking					
					
Color refer					
Color	1 st Band	2 nd Band	3 rd Band	4th Band	5 th Band
Black	0	0	0	10^0	
Brown	1	1	1	10^1	±1%
Red	2	2	2	10^2	
Orange	3	3	3	10^3	
Yellow	4	4	4	10^4	
Green	5	5	5	10^5	±0.5%
Blue	6	6	6	10^6	±0.25%
Violet	7	7	7	10^7	±0.1%
Grey	8	8	8	10^8	
White	9	9	9	10^9	
Gold				10^{-1}	
Silver				10^{-2}	

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METAL FILM RESISTORS(MF) SPECIFICATION	SPECIFICATION NO.	LGE—MF--07																																			
<p>6.Dimension</p> <p>6-1 Outline Dimensions</p>  <p>The diagram shows a side view of a resistor with a central body of length B and two leads of length L. The diameter of the leads is d. An end view shows a circular body with diameter D.</p> <p>6-2 TABLE Unit: mm</p> <table border="1" data-bbox="409 945 1201 1249"> <thead> <tr> <th>WATTS</th> <th>B</th> <th>D</th> <th>L</th> <th>d±0.02mm</th> </tr> </thead> <tbody> <tr> <td>MF1/6W,1/8W,1/16W</td> <td>3.2±0.2</td> <td>1.8±0.2</td> <td>28±2.0</td> <td>0.43</td> </tr> <tr style="background-color: yellow;"> <td>MF1/4 W, 1/2WS</td> <td>6.0±0.2</td> <td>2.3±0.2</td> <td>27±2.0</td> <td>0.45</td> </tr> <tr> <td>MF1/2W</td> <td>9.0±0.5</td> <td>3.2±0.2</td> <td>26±2.0</td> <td>0.60</td> </tr> <tr> <td>MF1W</td> <td>11.0±0.5</td> <td>4.5±0.5</td> <td>35±2.0</td> <td>0.70</td> </tr> <tr> <td>MF2W</td> <td>15.0±0.5</td> <td>5.0±0.5</td> <td>32±2.0</td> <td>0.80</td> </tr> <tr> <td>MF3W</td> <td>17.0±0.5</td> <td>6.0±0.5</td> <td>32±2.0</td> <td>0.80</td> </tr> </tbody> </table>			WATTS	B	D	L	d±0.02mm	MF1/6W,1/8W,1/16W	3.2±0.2	1.8±0.2	28±2.0	0.43	MF1/4 W, 1/2WS	6.0±0.2	2.3±0.2	27±2.0	0.45	MF1/2W	9.0±0.5	3.2±0.2	26±2.0	0.60	MF1W	11.0±0.5	4.5±0.5	35±2.0	0.70	MF2W	15.0±0.5	5.0±0.5	32±2.0	0.80	MF3W	17.0±0.5	6.0±0.5	32±2.0	0.80
WATTS	B	D	L	d±0.02mm																																	
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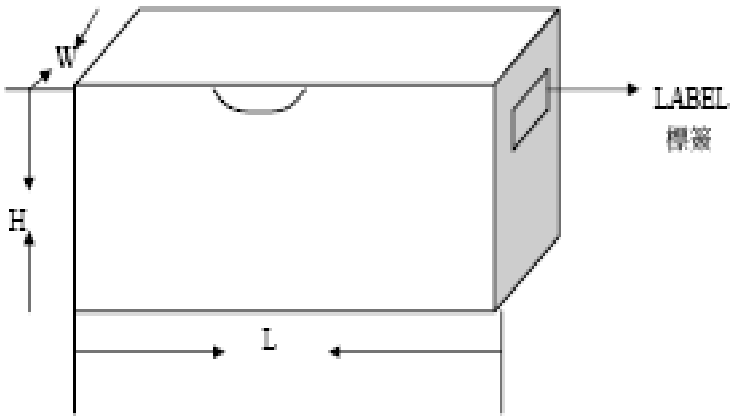
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METAL FILM RESISTORS(MF) SPECIFICATION		SPECIFICATION NO.		LGE—MF--08					
8. Taping Dimensions									
WATTS	Type	T	p=0.5	W=0.5	D1-D2 MAX	E MAX	Z MAX	S MAX	I MAX
1/6W/1/8W 1/16W	T- 26	26-1.5 26-0	5	6	0.8	0	1.2	0.8	3.2
	T- 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1/4W	T- 26	26+1.5 26-0	5	6	0.8	0	1.2	0.8	3.2
	T- 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1/2W	T- 52	52±1.5	5	6	0.8	0	1.2	0.8	3.2
1W	T- 73	73±1.5	5	6	0.8	0	1.4	0.8	3.2
2W	T- 73	73±1.5	10	6	0.8	0	1.4	0.8	3.2
3W	T- 73	73±1.5	10	6	0.8	0	1.4	0.8	3.2

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METAL FILM RESISTORS(MF) SPECIFICATION	SPECIFICATION NO.	LGE—MF--09																																															
<p>9 PACKING</p> <p>9-1. TAPING TYPE</p> <p>LABEL SPECIFICATION</p> <p>1 TYPE</p> <p>2 2 WATTS TOLERANCE</p> <p>3 3 RESISTANT QUANTITY</p> <p>4 P/N</p> <p>5 LOT NO.</p> <div data-bbox="483 844 1286 1255" style="text-align: center;"> </div>																																																	
<table border="1"> <thead> <tr> <th>TYPE</th> <th>WATTS</th> <th>L (m)</th> <th>W (in)</th> <th>H (in)</th> <th>QTY(pcs)</th> </tr> </thead> <tbody> <tr> <td rowspan="3">T-26</td> <td>1/6W 1/8W</td> <td rowspan="2">10.25</td> <td rowspan="2">2</td> <td>2.75</td> <td rowspan="2">5000</td> </tr> <tr> <td>1/16W 1/4WS</td> <td>4</td> </tr> <tr> <td>1/4W/ 1/2WS</td> <td>10.25</td> <td>2</td> <td>5000</td> </tr> <tr> <td rowspan="7">T-52</td> <td>1/6W / 1/8W</td> <td rowspan="3">10.25</td> <td rowspan="3">2.75</td> <td>2.5</td> <td rowspan="3">5000</td> </tr> <tr> <td>1/16W 1/4WS</td> <td>3.75</td> </tr> <tr> <td>1/4W/ 1/2WS</td> <td>1.875</td> <td>1000</td> </tr> <tr> <td>1W/ 2WS</td> <td>10.5</td> <td>3.625</td> <td>2.875</td> <td>1000</td> </tr> <tr> <td>2WS/ 3WS</td> <td>10.5</td> <td>3.625</td> <td>3.5</td> <td>1000</td> </tr> <tr> <td>3W</td> <td>10.5</td> <td>3.625</td> <td>2.875</td> <td>500</td> </tr> </tbody> </table>	TYPE	WATTS	L (m)	W (in)	H (in)	QTY(pcs)	T-26	1/6W 1/8W	10.25	2	2.75	5000	1/16W 1/4WS	4	1/4W/ 1/2WS	10.25	2	5000	T-52	1/6W / 1/8W	10.25	2.75	2.5	5000	1/16W 1/4WS	3.75	1/4W/ 1/2WS	1.875	1000	1W/ 2WS	10.5	3.625	2.875	1000	2WS/ 3WS	10.5	3.625	3.5	1000	3W	10.5	3.625	2.875	500					
TYPE	WATTS	L (m)	W (in)	H (in)	QTY(pcs)																																												
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T-52	1/6W / 1/8W	10.25	2.75	2.5	5000																																												
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	1W/ 2WS	10.5	3.625	2.875	1000																																												
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9-2 BULK							
							
WATTS		TYPE	L(m)	W(m)	H(m)	POLY BOG	BOX(pcs)
1/6W	1/16W	P	9.75	5.5	2.64	1000	20000
1/8W	1/4WS	MOLDING					
1/4W	1/2WS	P	9.75	5.5	2.64	500	10000
		MOLDING					
1/2W	1WS	P	9.75	5.5	2.64	500	5000
		MOLDING					
1W	2WS	P	9.75	5.5	2.64	200	2000
		MOLDING					
2W	3WS	P	9.75	5.5	2.64	200	1000
		MOLDING					
3W		P	9.75	5.5	2.64	100	1000
		MOLDING					