

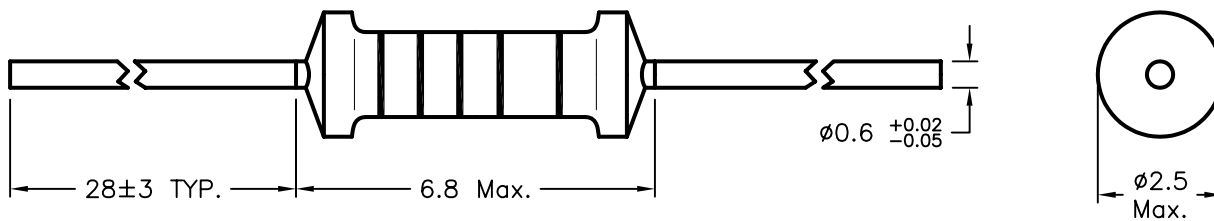
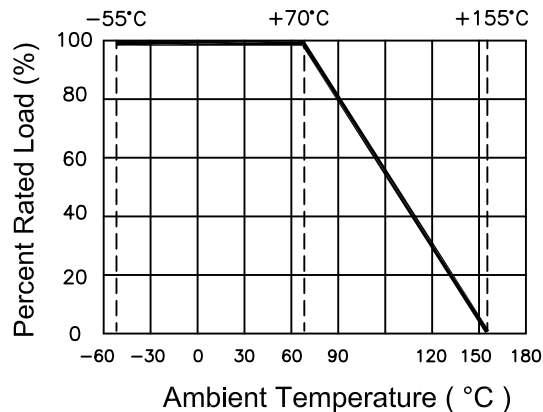
DCP #	REV	DESCRIPTION	DRAWN	DATE	CHECKD	DATE	APPRVD	DATE
1861	A	RELEASED	EYO	10/31/05	HO	11/2/05	JWM	10/31/05



Layer Name	Material
Basic Body	Rod Type Ceramics
Resistance Film	Carbon Film
End Cap	Steel (Tin plated iron surface)
Lead Wire	Annealed copper wire (Electrosolder plated surface) Pb Free
Joint	By Welding
Coating	Insulated resin (Color : Beige)
Color Code	Epoxy Resin

GENERAL SPECIFICATIONS:

- Rating Wattage @ 70°C: 0.25W
- Dielectric Withstanding Voltage: 500V
- Maximum Working Voltage: 250V
- Maximum Overload Voltage: 500V
- Tolerance: ±5%
- Resistance Range: (See parts table)
- Rated Ambient Temp.: 70°C
- Operating Temp. Range: -55°C to +155°C


Derating Curve


SPC-F004.DWG

TOLERANCES: UNLESS OTHERWISE SPECIFIED, DIMENSIONS ARE FOR REFERENCE PURPOSES ONLY.	DRAWN BY:	DATE:	DRAWING TITLE:			
	EKLAS ODISH	10/31/05	RoHS Compliant Carbon Film Resistors, 1/4W, 5%			
	CHECKED BY:	DATE:	SIZE	DWG. NO.	ELECTRONIC FILE	REV
	HISHAM ODISH	11/2/05	A	TA-668	TA-668.DWG	A
APPROVED BY:	DATE:	SCALE: NTS		U.O.M.: MILLIMETERS		SHEET: 1 OF 3
JEFF MCVICKER	10/31/05					

Characteristics	Limits		Test Methods (JIS C 5201-1)															
DC. Resistance	Must be within the specified tolerance		5.1 The limit of error of measuring apparatus shall not exceed allowable range or 5% of resistance tolerance															
Temperature coefficient	Resist. Range	T.C.R (PPM/°C)	5.2 Natural resistance change per temp. degree centigrade. $\frac{R_2 - R_1}{R_1(t_2 - t_1)} \times 10^6 \text{ (PPM/°C)}$ R ₁ : Resistance value at room temperature (t ₁) R ₂ : Resistance value at room temp. plus 100°C (t ₂)															
	≤10Ω	0 ±350																
	11Ω 99K	0 -450																
	100K 1M	0 -700																
	1.1M 10M	0 -1500																
Short time overload	Resistance change rate is ±(1% +0.05Ω) Max. with no evidence of mechanical damage.		5.5 Permanent resistance change after the application of a potential of 2.5 times RCWV for 5 seconds															
Insulation withstanding voltage	Insulation resistance is 10,000 MΩ Min		5.6 Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at DC potential respectively specified in above list for 60+10/-0 seconds															
Dielectric withstanding voltage	No evidence of flashover mechanical damage, arcing or insulation breakdown.		5.7 Resistors shall be clamped in the trough of a 90° metallic V-block and shall be tested at AC potential respectively specified in sheet '1'. for 60+10/-0 seconds															
Terminal strength	No evidence of mechanical damage.		6.1 Direct load: Resistance to a 2.5 kgs direct load for 10 seconds in the direction of the longitudinal axis of the terminal leads. Twist test: Terminal leads shall be bent through 90° at a point of about 6mm from the body of the resistor and shall be rotated through 360° about the original axis of the bent terminal in alternating directions for a total of 3 rotations.															
Resistance to soldering heat	Resistance change rate is ±(1% +0.05Ω) Max. with no evidence of mechanical damage.		6.4 Permanent resistance change when leads immersed to 3.2 to 4.8mm from the body in 350°C ±10°C solder for 3 ±0.5 seconds.															
Solderability	95% coverage Min.		6.5 The area covered with a new, smooth, clean, shiny and continuous surface free from concentrated pinholes. Test temperature of solder: 245°C ±3°C Dwell time in solder: 2-3 seconds															
Temperature cycling	Resistance change rate is ±(1% +0.05Ω) Max. with no evidence of mechanical damage.		7.4 Resistance change after continuous five cycles for duty shown below : <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Step</th> <th>Temperature</th> <th>Time (min)</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>-55°C ±3°C</td> <td>30</td> </tr> <tr> <td>2</td> <td>Room Temp.</td> <td>10 ~ 15</td> </tr> <tr> <td>3</td> <td>+155°C ±2°C</td> <td>30</td> </tr> <tr> <td>4</td> <td>Room Temp.</td> <td>10 ~ 15</td> </tr> </tbody> </table>	Step	Temperature	Time (min)	1	-55°C ±3°C	30	2	Room Temp.	10 ~ 15	3	+155°C ±2°C	30	4	Room Temp.	10 ~ 15
Step	Temperature	Time (min)																
1	-55°C ±3°C	30																
2	Room Temp.	10 ~ 15																
3	+155°C ±2°C	30																
4	Room Temp.	10 ~ 15																
Load life in humidity	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Resistance Value</th> <th>ΔR/R</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Normal type</td> <td>Less than 100KΩ</td> <td>±3%</td> </tr> <tr> <td>100KΩ or more</td> <td>±5%</td> </tr> </tbody> </table>	Resistance Value		ΔR/R	Normal type	Less than 100KΩ	±3%	100KΩ or more	±5%	7.9 Resistance change after 1,000 hours operating at RCWV with duty cycle of (1.5 hours "ON, 0.5 hour "OFF") in a humidity test chamber controlled at 40°C±2°C and 90 to 95% relative humidity.								
Resistance Value		ΔR/R																
Normal type	Less than 100KΩ	±3%																
	100KΩ or more	±5%																
Load life	<table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th colspan="2">Resistance Value</th> <th>ΔR/R</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Normal type</td> <td>Less than 56KΩ</td> <td>±2%</td> </tr> <tr> <td>56KΩ or more</td> <td>±3%</td> </tr> </tbody> </table>	Resistance Value		ΔR/R	Normal type	Less than 56KΩ	±2%	56KΩ or more	±3%	7.10 Permanent resistance change after 1,000 hours operating at * RCWV with duty cycle of 1.5 hours "on", 0.5 hour "off" at 70°C ±2°C ambient.								
Resistance Value		ΔR/R																
Normal type	Less than 56KΩ	±2%																
	56KΩ or more	±3%																

*RCWV = Rated Continuous Working Voltage = $\sqrt{\text{Rated Power} \times \text{Resistance Value}}$

Multicomp P/N #	Resistance
MCCFR0W4J00000A50	0 ohm
MCCFR0W4J050KA50	0.5 ohm
MCCFR0W4J010JA50	1 ohm
MCCFR0W4J011JA50	1.1 ohm
MCCFR0W4J012JA50	1.2 ohm
MCCFR0W4J013JA50	1.3 ohm
MCCFR0W4J016JA50	1.4 ohm
MCCFR0W4J015JA50	1.5 ohm
MCCFR0W4J018JA50	1.8 ohm
MCCFR0W4J020JA50	2 ohm
MCCFR0W4J022JA50	2.2 ohm
MCCFR0W4J024JA50	2.4 ohm
MCCFR0W4J027JA50	2.7 ohm
MCCFR0W4J030JA50	3 ohm
MCCFR0W4J033JA50	3.3 ohm
MCCFR0W4J036JA50	3.6 ohm
MCCFR0W4J039JA50	3.9 ohm
MCCFR0W4J0435A50	4.3 ohm
MCCFR0W4J043JA50	4.3 ohm
MCCFR0W4J047JA50	4.7 ohm
MCCFR0W4J051JA50	5.1 ohm
MCCFR0W4J056JA50	5.6 ohm
MCCFR0W4J062JA50	6.2 ohm
MCCFR0W4J068JA50	6.8 ohm
MCCFR0W4J075JA50	7.5 ohm
MCCFR0W4J082JA50	8.2 ohm
MCCFR0W4J091JA50	9.1 ohm
MCCFR0W4J0100A50	10 ohm
MCCFR0W4J0110A50	11 ohm
MCCFR0W4J0120A50	12 ohm
MCCFR0W4J0130A50	13 ohm
MCCFR0W4J0150A50	15 ohm
MCCFR0W4J0160A50	16 ohm
MCCFR0W4J0180A50	18 ohm
MCCFR0W4J0200A50	20 ohm
MCCFR0W4J0220A50	22 ohm
MCCFR0W4J0240A50	24 ohm
MCCFR0W4J0270A50	27 ohm
MCCFR0W4J0300A50	30 ohm
MCCFR0W4J0330A50	33 ohm
MCCFR0W4J0360A50	36 ohm
MCCFR0W4J0390A50	39 ohm
MCCFR0W4J0430A50	43 ohm
MCCFR0W4J0470A50	47 ohm
MCCFR0W4J0510A50	51 ohm
MCCFR0W4J0560A50	56 ohm
MCCFR0W4J0620A50	62 ohm
MCCFR0W4J0680A50	68 ohm
MCCFR0W4J0750A50	75 ohm
MCCFR0W4J0820A50	82 ohm
MCCFR0W4J0910A50	91 ohm
MCCFR0W4J0101A50	100 ohm
MCCFR0W4J0111A50	110 ohm
MCCFR0W4J0121A50	120 ohm
MCCFR0W4J0131A50	130 ohm
MCCFR0W4J0151A50	150 ohm
MCCFR0W4J0161A50	160 ohm

Multicomp P/N #	Resistance
MCCFR0W4J0181A50	180 ohm
MCCFR0W4J0201A50	200 ohm
MCCFR0W4J0221A50	220 ohm
MCCFR0W4J0241A50	240 ohm
MCCFR0W4J0271A50	270 ohm
MCCFR0W4J0301A50	300 ohm
MCCFR0W4J0331A50	330 ohm
MCCFR0W4J0361A50	360 ohm
MCCFR0W4J0391A50	390 ohm
MCCFR0W4J0431A50	430 ohm
MCCFR0W4J0471A50	470 ohm
MCCFR0W4J0511A50	510 ohm
MCCFR0W4J0561A50	560 ohm
MCCFR0W4J0621A50	620 ohm
MCCFR0W4J0681A50	680 ohm
MCCFR0W4J0751A50	750 ohm
MCCFR0W4J0821A50	820 ohm
MCCFR0W4J0911A50	910 ohm
MCCFR0W4J0102A50	1 kohm
MCCFR0W4J0112A50	1.1 kohm
MCCFR0W4J0122A50	1.2 kohm
MCCFR0W4J0132A50	1.3 kohm
MCCFR0W4J0152A50	1.5 kohm
MCCFR0W4J0162A50	1.6 kohm
MCCFR0W4J0182A50	1.8 kohm
MCCFR0W4J0202A50	2 kohm
MCCFR0W4J0222A50	2.2 kohm
MCCFR0W4J0242A50	2.4 kohm
MCCFR0W4J0272A50	2.7 kohm
MCCFR0W4J0302A50	3 kohm
MCCFR0W4J0332A50	3.3 kohm
MCCFR0W4J0362A50	3.6 kohm
MCCFR0W4J0392A50	3.9 kohm
MCCFR0W4J0432A50	4.3 kohm
MCCFR0W4J0472A50	4.7 kohm
MCCFR0W4J0512A50	5.1 kohm
MCCFR0W4J0562A50	5.6 kohm
MCCFR0W4J0622A50	6.2 kohm
MCCFR0W4J0682A50	6.8 kohm
MCCFR0W4J0752A50	7.5 kohm
MCCFR0W4J0822A50	8.2 kohm
MCCFR0W4J0912A50	9.1 kohm
MCCFR0W4J0103A50	10 kohm
MCCFR0W4J0113A50	11 kohm
MCCFR0W4J0123A50	12 kohm
MCCFR0W4J0133A50	13 kohm
MCCFR0W4J0153A50	15 kohm
MCCFR0W4J0163A50	16 kohm
MCCFR0W4J0183A50	18 kohm
MCCFR0W4J0203A50	20 kohm
MCCFR0W4J0223A50	22 kohm
MCCFR0W4J0243A50	24 kohm
MCCFR0W4J0273A50	27 kohm
MCCFR0W4J0303A50	30 kohm
MCCFR0W4J0333A50	33 kohm
MCCFR0W4J0363A50	36 kohm
MCCFR0W4J0393A50	39 kohm

Multicomp P/N #	Resistance
MCCFR0W4J0433A50	43 kohm
MCCFR0W4J0473A50	47 kohm
MCCFR0W4J0513A50	51 kohm
MCCFR0W4J0563A50	56 kohm
MCCFR0W4J0623A50	62 kohm
MCCFR0W4J0683A50	68 kohm
MCCFR0W4J0753A50	75 kohm
MCCFR0W4J0823A50	82 kohm
MCCFR0W4J0913A50	91 kohm
MCCFR0W4J0104A50	100 kohm
MCCFR0W4J0114A50	110 kohm
MCCFR0W4J0124A50	120 kohm
MCCFR0W4J0134A50	130 kohm
MCCFR0W4J0154A50	150 kohm
MCCFR0W4J0164A50	160 kohm
MCCFR0W4J0184A50	180 kohm
MCCFR0W4J0204A50	200 kohm
MCCFR0W4J0224A50	220 kohm
MCCFR0W4J0244A50	240 kohm
MCCFR0W4J0274A50	270 kohm
MCCFR0W4J0304A50	300 kohm
MCCFR0W4J0334A50	330 kohm
MCCFR0W4J0364A50	360 kohm
MCCFR0W4J0394A50	390 kohm
MCCFR0W4J0434A50	430 kohm
MCCFR0W4J0474A50	470 kohm
MCCFR0W4J0514A50	510 kohm
MCCFR0W4J0564A50	560 kohm
MCCFR0W4J0624A50	620 kohm
MCCFR0W4J0684A50	680 kohm
MCCFR0W4J0754A50	750 kohm
MCCFR0W4J0824A50	820 kohm
MCCFR0W4J0914A50	910 kohm
MCCFR0W4J0105A50	1 Mohm
MCCFR0W4J0115A50	1.1 Mohm
MCCFR0W4J0125A50	1.2 Mohm
MCCFR0W4J0135A50	1.3 Mohm
MCCFR0W4J0155A50	1.5 Mohm
MCCFR0W4J0165A50	1.6 Mohm
MCCFR0W4J0185A50	1.8 Mohm
MCCFR0W4J0205A50	2 Mohm
MCCFR0W4J0225A50	2.2 Mohm
MCCFR0W4J0245A50	2.4 Mohm
MCCFR0W4J0275A50	2.7 Mohm
MCCFR0W4J0305A50	3 Mohm
MCCFR0W4J0335A50	3.3 Mohm
MCCFR0W4J0365A50	3.6 Mohm
MCCFR0W4J0395A50	3.9 Mohm
MCCFR0W4J0475A50	4.7 Mohm
MCCFR0W4J0515A50	5.1 Mohm
MCCFR0W4J0565A50	5.6 Mohm
MCCFR0W4J0625A50	6.2 Mohm
MCCFR0W4J0685A50	6.8 Mohm
MCCFR0W4J0755A50	7.5 Mohm
MCCFR0W4J0825A50	8.2 Mohm
MCCFR0W4J0915A50	9.1 Mohm
MCCFR0W4J0106A50	10 Mohm

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SPC-F004.DWG

SIZE DWG. NO.

A

TA-668

ELECTRONIC FILE

TA-668.DWG

REV

A

DOC. NO. SPC-F004 * Effective: 7/8/02 * DCP No: 1398

SCALE: NTS

U.O.M.: Millimeters

SHEET: 3 OF 3