

PRECISION ELECTRONIC COMPONENTS MFG. CO.

WIREWOUND RESISTORS/DATA SHEET



COMMITTED TO QUALITY

PIA SERIES

PROFESSIONAL AND MILITARY APPLICATIONS.
SILICONE COATED. AXIAL.

- * EASY TO MOUNT ON PCBs
- * HIGH STABILITY, PRECISION AND SMALL SIZE
- * INDUSTRIAL, PROFESSIONAL AND PREMIUM GRADES
- * TOLERANCES OF 0.1%
- * NON-INDUCTIVE TYPES
- * LOW VALUES DOWN TO 0R01

- * REFERENCE STANDARDS
 - MIL-R-26E
 - MIL-R-39007
 - JSS 50402 [RFHT-1]
 - IEC QC

Covering a broad range of requirements in the electronics industry, the PIA Series has been split up into three groups - Industrial, Professional and Premium. A fourth group for Precision Resistors is separately detailed in PEC's PSP Series.

The industrial group is characterized by small size. It is non-insulated and it's main advantage is the relatively low price. This group covers all requirements of industrial electronic equipment, power supplies and instrumentation.

The Professional group generally corresponds to MIL grade and JSS

requirements. They are approved to JSS 50402. Screw mounting terminals can be supplied in 3, 6, 9 and 12 watts [Table 2, Fig.3A].

The Premium type has sizes and performance as per MIL-R-26 E characteristic U. Tolerance of 0.1% available in this category in combination with power rating upto 10W, make the series of unique value for the circuit designer. Non-inductive resistors are also available in this series with extremely fast rise time. Maximum values in non-inductive types are half the maximum values specified. The non-inductive types carry the suffix N, ex. P-3N.

SPECIFICATIONS JSS 50402, MIL-R-26E

	INDUSTRIAL	PROFESSIONAL	PREMIUM
PEC TYPES	P1, P2, P3, P4, P5, P7 & P10	P1B, P2A, P3C, P4B, P5B, P6, P6A, P9, P10A, P12 & P14	P1A, P1B, P3A, P5A & P10A
TOLERANCE	±1%, 2%, 5%, & 10%	±1%, 2%, 5%, & 10%	±0.10%, 0.25%, 0.50% & 1.00%
TEMP. COEFF. OF RESISTANCE [TCR]	±200PPM/°C (MAX.)	±200PPM/°C (MAX.)	±30PPM/°C (MAX.) [EXCEPT FOR VERY LOW VALUES]
MAX. VOLTAGE	GENERALLY CORRESPONDING TO THE LIMITS OF SPECIFICATION.		
STABILITY	±3%	±3%	±0.5%
POWER RATING	RATED @ 40°C AMBIENT AND. DERATED LINEARLY TO ZERO AT 275°C [Fig. 2A]	FOR JSS, RATED @ 70°C AMBIENT AND DERATED LINEARLY TO ZERO AT 350°C [Fig. 2B]. FOR MIL RATED @ 25°C AMBIENT AND DERATED LINEARLY TO ZERO AT 350°C [FIG.2C - CHARACTERISTIC V]	RATED @ 25°C AMBIENT AND DERATED LINEARLY TO ZERO AT 275°C [Fig.2C - CHARACTERISTIC U]

0894/RA01/DS/1-3

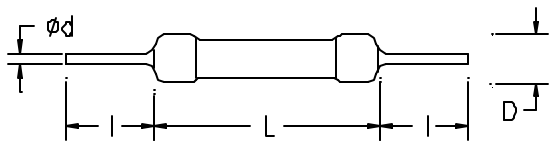


Fig.1

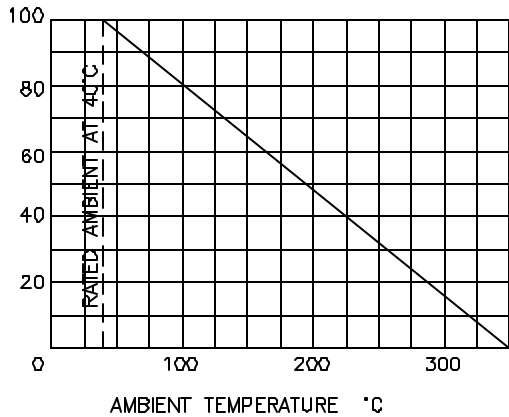


Fig.2A

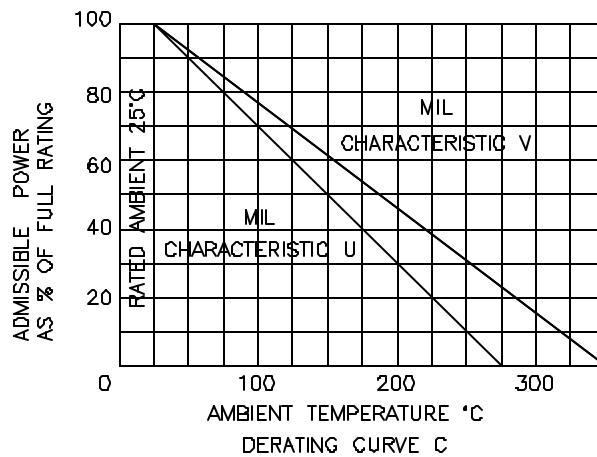
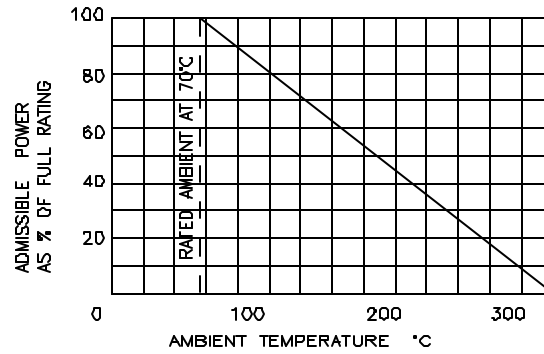


Fig.2C

TABLE 2 : OPTION 1 - SCREW MOUNTING TERMINATION [Fig.3A]

PEC TYPE	DIMENSIONS IN MM (IN.)			
	L	D	l	SCREW THREAD
	± 2.00 (± 0.079)	± 0.50 (± 0.020)	± 0.50 (± 0.020)	
P3S	31.0 (1.22)	8.0 (0.31)	5.0 (0.20)	M3 x 0.50
P6S	35.0 (1.38)	9.0 (0.35)	5.0 (0.20)	M4 x 0.70 AND M3 x 0.50
P9S	49.0 (1.93)	9.0 (0.35)	5.0 (0.20)	M4 x 0.70 AND M3 x 0.50
P12S	64.0 (2.52)	9.0 (0.35)	5.0 (0.20)	M4 x 0.70 AND M3 x 0.50

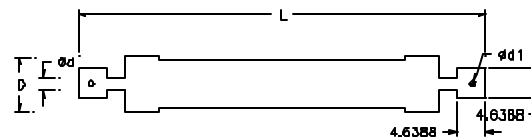


Fig.3B

TABLE 3 : OPTION 2 - KNIFE EDGE TERMINATION

PEC TYPE	DIMENSIONS IN MM (IN.)			
	L	D	d	d ₁
	± 2.00 (± 0.079)	± 0.50 (± 0.020)	± 0.20 (± 0.008)	± 0.20 (± 0.008)
P6F	40.0 (1.57)	7.6 (0.30)	2.2 (0.09)	1.2 (0.05)
P9F	54.0 (2.13)	7.6 (0.30)	2.2 (0.09)	1.2 (0.05)
P12F	69.0 (2.72)	7.6 (0.30)	2.2 (0.09)	1.2 (0.05)

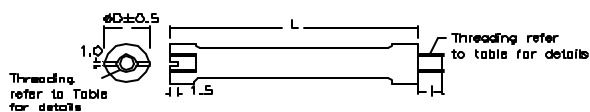


Fig.3A

PIA SERIES

TABLE 1 : PIA SERIES - DIMENSION DETAILS - RESISTANCE RANGE - STANDARDS

PEC TYPE	RATING	MAX. VOLTAGE	DIMENSIONS IN MM (IN.)			RESISTANCE RANGE		MIL-R-39007 MIL-R-26E TYPE Nos. ¹²	JSS TYPE Nos.	GRADE
			L	D	d	OHMS MIN ⁷	MAX			
P1	1.00W	50V	12.0 (0.47)	4.0 (0.16)	0.8 (0.03)	0R1	3K3		INDUSTRIAL	
P1A	2.00W	50V	11.0 (0.43)	3.5 (0.14)	0.8 (0.03)	0R1	6K8	RW80	PREMIUM	
P1B	1.00W	50V	7.0 (0.28)	3.0 (0.12)	0.5 (0.02)	0R1	2K2	RW81	PREMIUM/ PROFESSIONAL	
P2	2.00W	100V	12.0 (0.47)	5.0 (0.20)	0.8 (0.03)	0R1	4K7		INDUSTRIAL	
P2A ⁵	2.50W	100V	13.0 ¹ (0.51)	5.6 ¹ (0.22)	0.8 (0.03)	0R1	10K	RFHT-1 (2.5W)	PROFESSIONAL	
P3 ⁶	3.00W	150V	17.0 (0.67)	6.0 (0.24)	0.8 (0.03)	0R1	4K7		INDUSTRIAL	
P3A	3.00W	150V	12.0 (0.47)	5.0 (0.20)	0.8 (0.03)	0R1	4K7	RW69,RW89 RW79 (3W) RWR89	PREMIUM	
P3C**	3.00W	150V	14.5 ¹ (0.51)	5.6 ¹ (0.22)	0.8 (0.03)	0R01	10K		PROFESSIONAL	
P4	4.00W	150V	17.0 (0.67)	7.0 (0.28)	0.8 (0.03)	0R1	6K8		INDUSTRIAL	
P4B**	4.00W	150V	16 ¹ (0.59)	5.6 ¹ (0.22)	0.8 (0.03)	0R01	15K		PROFESSIONAL	
P5	5.00W	250V	22.0 (0.87)	7.0 (0.28)	0.8 (0.03)	0R1	33K		INDUSTRIAL	
P5A	5.00W	250V	23.0 (0.91)	8.0 (0.31)	1.0 (0.04)	0R1	39K	RWR74 RW74	PREMIUM/ PROFESSIONAL	
P5B**	5.00W	200V	18.5 ¹ (0.67)	6.0 ¹ (0.24)	0.8 (0.03)	0R01	20K		PROFESSIONAL	
P6 ^{5,6,8}	6.00W	250V	23.0 ¹ (0.91)	8.0 ¹ (0.31)	0.8 (0.03)	0R1	33K	RW67	RFHT-1 (6W)	
P6A**	7.00W	250V	26.0 ¹ (0.94)	8.8 ¹ (0.33)	0.8 (0.03)	0R01	33K		PROFESSIONAL	
P7	7.00W	500V	35.0 (1.38)	7.0 (0.28)	0.8 (0.03)	0R1	68K		INDUSTRIAL	
P9 ^{5,6,8}	9.00W	500V	39.0 ¹ (1.53)	8.0 ¹ (0.31)	0.8 (0.03)	0R1	68K	RW55	RFHT-1 (9W)	
P10	10.00W	750V	50.0 (1.97)	7.0 (0.28)	0.8 (0.03)	0R1	100K		INDUSTRIAL	
P10A	10.00W	750V	45.0 (1.77)	8.0 (0.31)	1.0 (0.04)	0R1	100K	RW68, RW78 RWR78	PREMIUM/ PROFESSIONAL	
P12 ^{5,6,8}	12.00W	750V	54.0 ¹ (2.13)	8.0 ¹ (0.31)	0.8 (0.03)	0R1	100K		RFHT-1 (12W)	
P14	14.00W	750V	50.0 (1.97)	9.0 (0.35)	1.0 (0.04)	0R1	180K	RW56	PROFESSIONAL	

Notes:

1. Maximum dimension.
2. Minimum dimension.
3. Except for dimensions.
4. 0.8mm dia. and copperweld leads are available as options for P5A,P10A and P14.
5. In P2A, P6, P9 and P12, JSS 50402 has a minimum limit of 0R1. However, values down to 0R01 can be supplied. The range indicated is the approved range.
6. P3, P6, P9 and P12 types can be supplied with screw mounting terminals. These are designated with the suffix "S" as for ex. in P3S. Dimensions are as per Table 2 and Fig 3A.
7. For very low values, large dia. leads may be used.
8. Low values in this series are available with knife edge terminals in P6, P9 and P12. These are designated with the the suffix "F" as for ex.in P6F. Dimensions are as per Table 3 and Fig 3B.
9. NI resistor 'D' are likely to be more by upto +1.5mm, depending on the value.
10. All MIL equivalents will have tolerance on 'L' $\pm 1.6\text{mm}$ & 'D' $\pm 0.8\text{mm}$.
11. Premium grades will generally be in Black colour & will have a suffix "P" for identification.
12. The MIL standard reference is intended to serve as a guide. This does not imply qualification approval. Exact interchangeability is not implied, as some minor difference may exist.

** Power rated @ 25°C