T-11-09

IN821-829A SERIES

Zener Reference Diodes
6V2 and 6V55 Volts
Temperature Compensated

APPLICATIONS

- Semitron's 'ZR' range of silicon voltage references are designed and tested to provide an economical and stable reference voltage for use over a wide range of operating currents (1.0 to 15.0 mA).

FEATURES

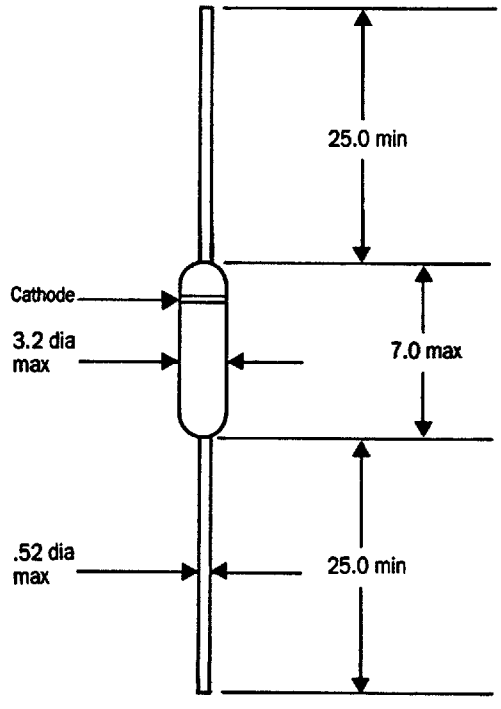
- All glass hermetically sealed case gives complete environmental protection
- Maximum operating range –65°C to +175°C
  Storage temperature –65°C to +200°C
- Maximum dissipation 400mW, derate linearly from +50°C to +175°C
- Noise, bandwidth 2Hz – 75KHz
  Iz 2.0mA ≤ 100µV
  Iz 7.5mA ≤ 50µV
  Iz 15.0mA ≤ 40µV

The above levels are typical

- Selected diodes are available including power burn if required

MECHANICAL DATA

- Case: Hermetically sealed glass case D07
- Finish: All external surfaces are corrosion resistant and leads solderable
- Thermal Resistance: 300°C/W (typical)
  Junction to lead at 0.375" from body
- Polarity: Diode to be operated with the banded end positive with respect to the opposite end
- Weight: 0.2 grams
- Mounting position: Any



Dimensions in mm (D07)

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Reference Diodes to JEDEC specifications

Type*	Vz ± 5%	Iz mA	Rz Ohms	TC % per °C −55°C – +25°C +25°C – +100°C
IN821	6.2	7.5	≤15	±.01
IN823	6.2	7.5	≤15	±.005
IN825	6.2	7.5	≤15	±.002
IN827	6.2	7.5	≤15	±.001
IN829	6.2	7.5	≤15	±.0005

*Add suffix 'A' for dynamic impedance ≤ 10Ω

Type	Vz ± 5%	Iz mA	Rz Ohms Typ	Max	T.C. % per °C Max +10°C – +75°C
ZR821/10	6.2	1.0	45	90	±.01
ZR821/20	6.2	2.0	25	50	±.01
ZR821/50	6.2	5.0	10	20	±.01
ZR821/75	6.2	7.5	7	15	±.01
ZR821/100	6.2	10.0	5	10	±.01
ZR821/120	6.2	12.0	3	8	±.01
ZR821/150	6.2	15.0	2	6	±.01
ZR823/10	6.2	1.0	45	90	±.005
ZR823/20	6.2	2.0	25	50	±.005
ZR823/50	6.2	5.0	10	30	±.005
ZR823/75	6.2	7.5	7	15	±.005
ZR823/100	6.2	10.0	5	10	±.005
ZR823/120	6.2	12.0	3	8	±.005
ZR823/150	6.2	15.0	2	6	±.005
ZR825/20	6.2	2.0	25	50	±.002
ZR825/50	6.2	5.0	10	20	±.002
ZR825/75	6.2	7.5	7	15	±.002
ZR825/100	6.2	10.0	5	10	±.002
ZR825/120	6.2	12.0	3	8	±.002
ZR825/150	6.2	15.0	2	6	±.002
ZR827/20	6.2	2.0	25	50	±.001
ZR827/50	6.2	5.0	10	20	±.001
ZR827/75	6.2	7.5	7	15	±.001
ZR827/100	6.2	10.0	5	10	±.001
ZR827/120	6.2	12.0	3	8	±.001
ZR827/150	6.2	15.0	2	6	±.001
ZR829/50	6.2	5.0	10	20	±.0005
ZR829/75	6.2	7.5	7	15	±.0005
ZR829/100	6.2	10.0	5	10	±.0005
ZR829/120	6.2	12.0	3	8	±.0005

Multi-Current Series temperature coefficient guaranteed over indicated current range

Type	Vz ± 5%	Iz Range (mA) Min	Max	Max Dynamic Resistance Over Iz Range at 25°C (ohms) @ Iz min	@ Iz max	T.C. % per °C −55°C ± 100°C
ZS61	6.2	2.0	15.0	50	12	±0.01
ZS605	6.2	2.0	15.0	50	12	±0.0005
ZS6020	6.2	3.0	7.5	30	15	±0.002
ZS6021	6.2	7.5	15.0	15	12	±0.002
ZS6010	6.2	3.0	7.5	30	15	±0.001
ZS6011	6.2	7.5	12.0	15	12	±0.001

TYPICAL CHANGE OF ZENER VOLTAGE WITH CHANGE IN OPERATING CURRENT

This curve illustrates the change of diode voltage arising from the effect of impedance. It is in effect an exploded view of the zener operating region of the I-V characteristic.

The curve shown is typical of the diode series and greatly simplifies the estimation of the Temperature Coefficient (TC) when the diode is operated at currents other than 7.5mA.

Example: A diode in this series is operated at a current of 7.5mA and has specified Temperature Coefficient (TC) limits of ±0.005%/°C. To obtain the typical Temperature Coefficient limits for this same diode operated at a current of 6.0mA, the new TC limits (%/°C) can be estimated using the graph in FIGURE 2.

At a test current of 6.0 mA the change in Temperature Coefficient (TC) is approximately −0.0006%/°C. The algebraic sum of ±0.005% /°C and −0.0006%/°C gives the new estimated limits of +0.0044%/°C and −0.0056%/°C.

FIG. 1
POWER DERATING CURVE

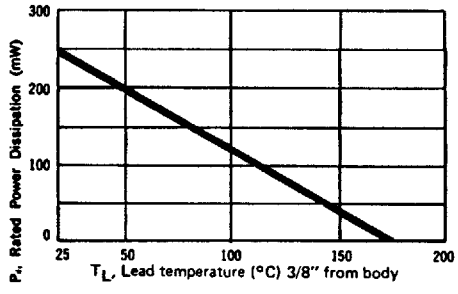


FIG. 2
TYPICAL CHANGE OF TEMPERATURE COEFFICIENT WITH CHANGE IN OPERATING CURRENT

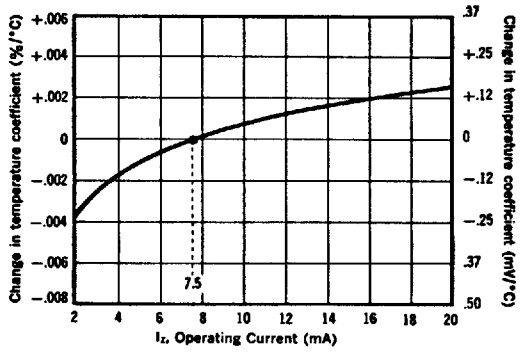
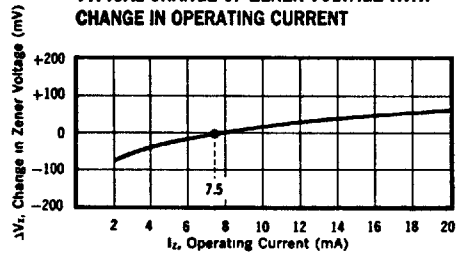


FIG. 3
TYPICAL CHANGE OF ZENER VOLTAGE WITH CHANGE IN OPERATING CURRENT

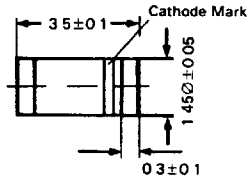


T-91-20

OUTLINE DRAWINGS

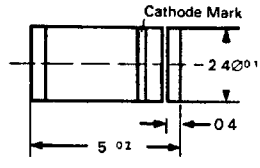
Unit = inch (mm)

DL-35 MiniMELF



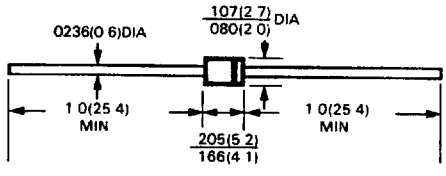
UNIT=(mm)

DL-41 MELF

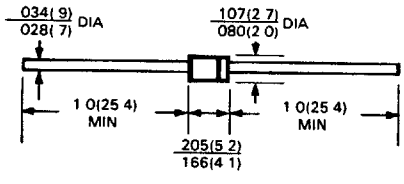


UNIT=(mm)

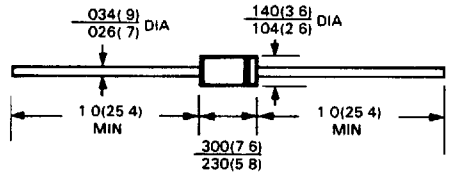
A-405



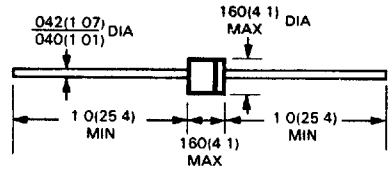
DO-41



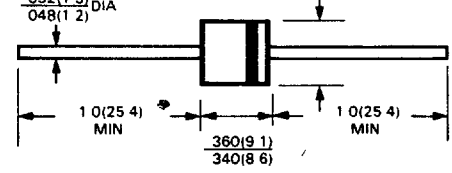
DO-15



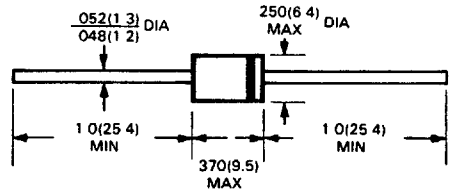
R-3



R-6



DO-201AD



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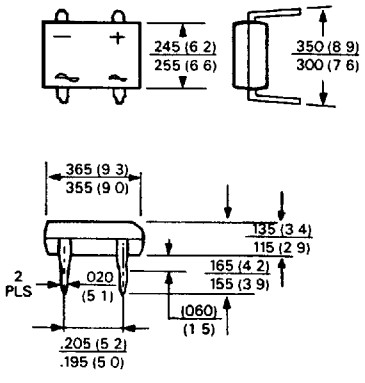
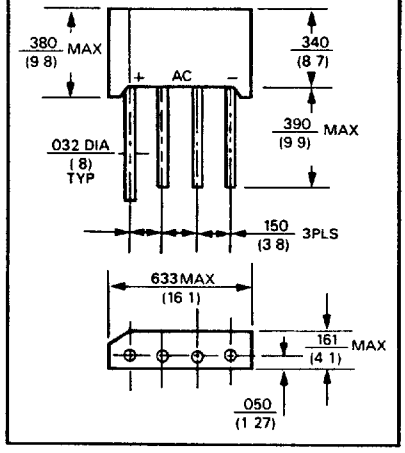
OUTLINE DRAWINGS

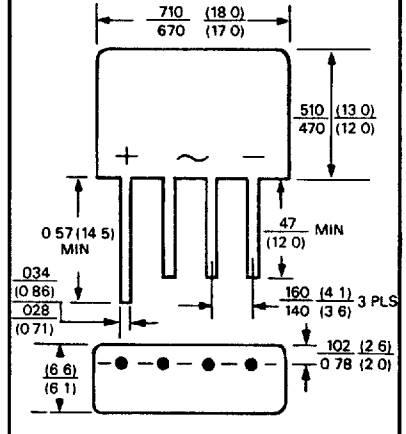
DB-1



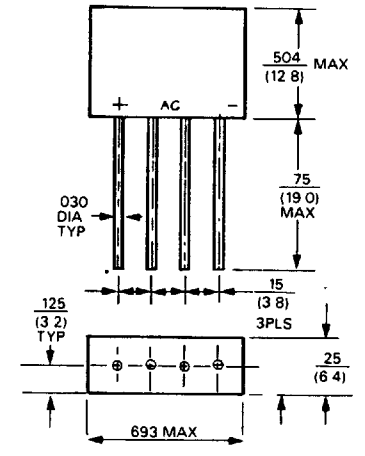
RS-1



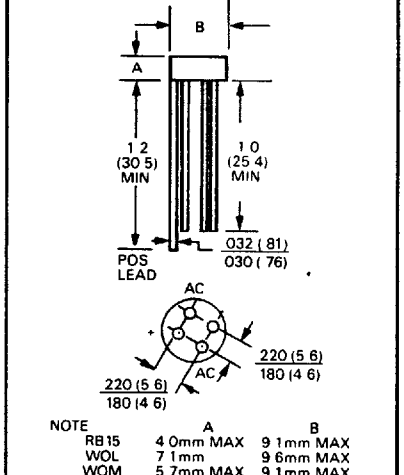
RS-2



BR8D

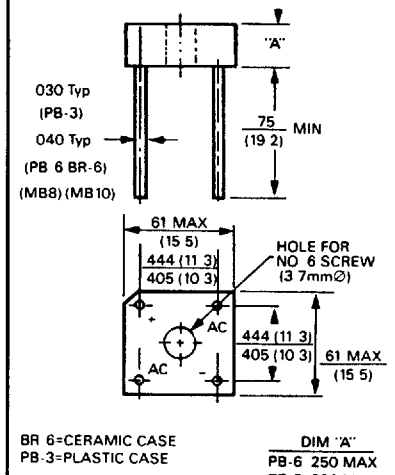


RB-15/WOL/WOM



NOTE	A	B
RB15	4 0mm MAX	9 1mm MAX
WOL	7 1mm	9 6mm MAX
WOM	5 7mm MAX	9 1mm MAX

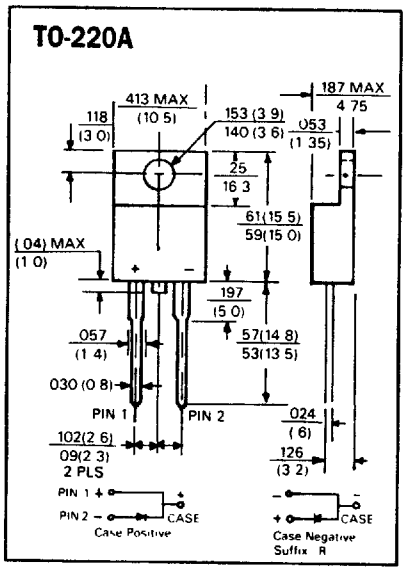
PB-3/BR-6/PB-6

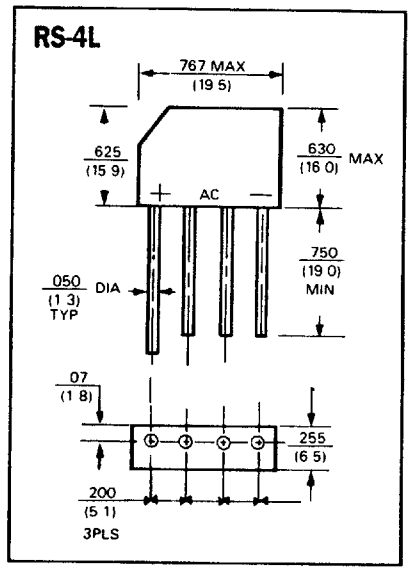


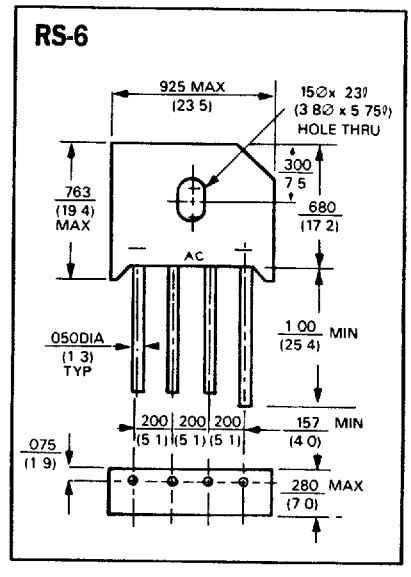
BR 6=CERAMIC CASE
PB-3=PLASTIC CASE

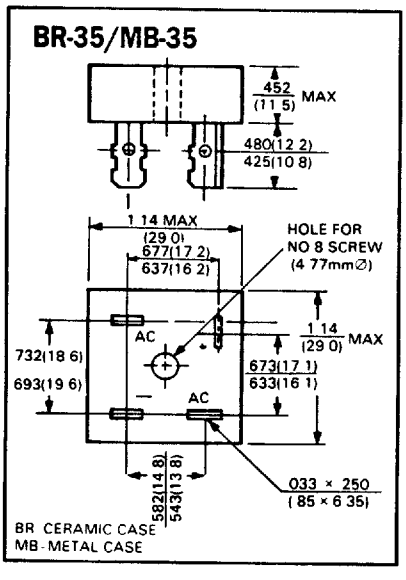
DIM "A"
PB-6 250 MAX
PB-3 200 MAX

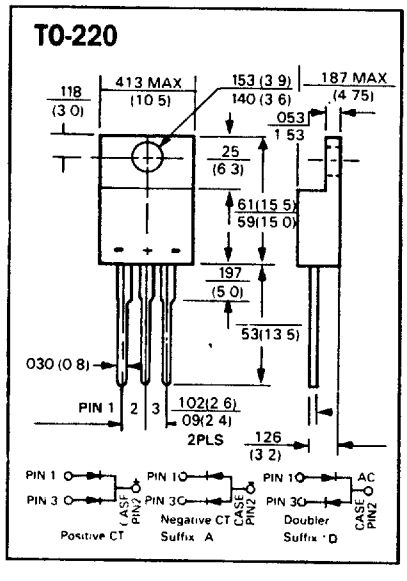
OUTLINE DRAWINGS

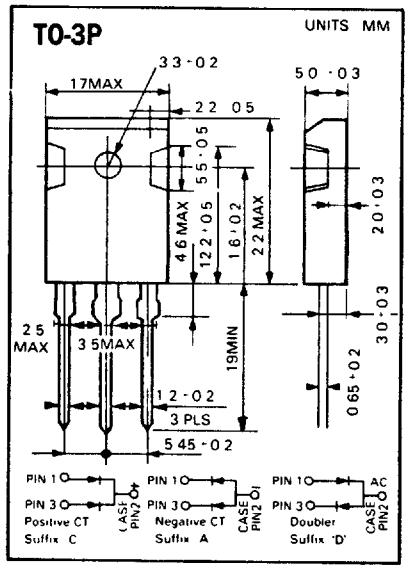












RECTIFIERS

Product Packaging Specifications

PACKAGING OF AXIAL LEAD DIODES, MELF AND MINI-MELF SURFACE MOUNT DEVICES AND TRANSISTORS

REEL PACK

OUTLINE	COMPONENT SPACE (mm)	TAPE SPACE (mm)	REEL DIA. (m/m)	QTY./REEL (each)
DO-7	5.0	52.4	330	10,000
DO-35	5.0	53	355	10,000
DO-35 (ZENER)	[RADIAL TAPING SEE FIG. 1, 2 & 3]		355	5,000
DL-35 (MINI MELF)	See Pg. 37		250/330	5,000/10,000
DL-41 (MELF)	See Pg. 37		330	5,000
A-405	5.0	52.4	330	5,000
A-500	5.0	52.4	203/254/304	1,000/2,000/3,000
DO-41	5.0	52.4	330	5,000
DO-41 (ZENER)	5.0	53	355	5,000
DO-15	5.0	52.4	330	4,000
R-3	5.0	52.4	330	3,000
DO-201AD	10.0	52.4	330	1,200
R-6	10.0	52.4	330	500
TO-92	[RADIAL TAPING SEE FIG. 4, 5 & 6]		355	2,000
TO-236/SOT-23	[SEE SPECIFICATIONS ON PG.38]		178	3,000

PACKAGING OF AXIAL LEAD DIODES AND LEADED TRANSISTORS

AMMO PACK

OUTLINE	COMPONENT SPACE (mm)	TAPE SPACE (mm)	BOX SIZE (m/m)	QTY./BOX (each)
DO-35 (SW. DIODES)	5.0	53	338/147/77	15,000
DO-35	5.0	53	255/95/85	6,000
DO-35	5.0	26	255/95/51	6,000
A-405	5.0	52.4	255/95/78	3,000
DO-41	5.0	52.4	255/95/78	3,000
DO-41	5.0	26	255/51/95	3,000
DO-41 (ZENER)	5.0	53	255/95/85	3,000
DO-41 (ZENER)	5.0	26	255/95/51	3,000
DO-15	5.0	52.4	255/95/78	2,200
R-3	5.0	52.4	255/95/78	2,000
DO-201AD	10.0	52.4	255/95/78	800
R-6	10.0	52.4	255/95/78	300
TO-92	[RADIAL TAPING, SEE FIG. 4]		340/340/45	4,000