



Micro Commercial Components



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1N4678
THRU
1N4717

Features

- Zener Voltage 1.8V to 43V
Very Sharp Reverse Characteristic
VZ - tolerance +/- 5% standard
High Reliability
Lead Free Finish/Rohs Compliant (Note1) ("P" Suffix designates Compliant. See ordering information)

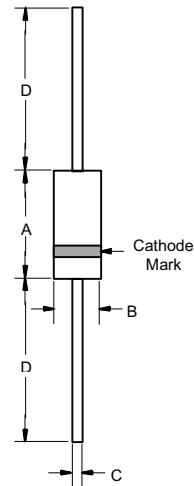
Mechanical Data

- Case: Double slug type, hermetically sealed glass
Marking : Cathode band and type number
Moisture Sensitivity: Level 1

Maximum Ratings

Table with 4 columns: Parameter, Symbol, Value, Units. Rows include Max. Steady State Power Dissipation, Junction Temperature, Storage Temperature Range, Thermal Resistance.

DO-35



Electrical Characteristics @ 25°C Unless Otherwise Specified

Table with 4 columns: Parameter, Symbol, Maximum, Unit. Row: Max. Forward Voltage @ IF=100mA, VF, 1.5, V

Note: 1. Lead in Glass Exemption Applied, see EU Directive Annex 7(C)-I.

Table with 6 columns: DIM, INCHES (MIN, MAX), MM (MIN, MAX), NOTE. Rows A, B, C, D.

| Device <sup>(1)</sup> | Device Marking | Zener Voltage          |     |       |                   | Leakage Current <sup>(2)</sup>  |       | I <sub>ZM</sub> <sup>(3)</sup> | ΔV <sub>Z</sub> <sup>(4)</sup> |
|-----------------------|----------------|------------------------|-----|-------|-------------------|---------------------------------|-------|--------------------------------|--------------------------------|
|                       |                | V <sub>Z</sub> (Volts) |     |       | @ I <sub>ZT</sub> | I <sub>R</sub> @ V <sub>R</sub> |       |                                |                                |
|                       |                | Min                    | Nom | Max   | uA                | uA Max                          | Volts | mA                             | Volts                          |
| 1N4678                | 1N4678         | 1.71                   | 1.8 | 1.89  | 50                | 7.5                             | 1.0   | 120                            | 0.7                            |
| 1N4679                | 1N4679         | 1.90                   | 2.0 | 2.10  | 50                | 5.0                             | 1.0   | 110                            | 0.7                            |
| 1N4680                | 1N4680         | 2.09                   | 2.2 | 2.31  | 50                | 5.0                             | 1.0   | 100                            | 0.75                           |
| 1N4681                | 1N4681         | 2.28                   | 2.4 | 2.52  | 50                | 2.0                             | 1.0   | 95                             | 0.8                            |
| 1N4682                | 1N4682         | 2.565                  | 2.7 | 2.835 | 50                | 1.0                             | 1.0   | 90                             | 0.85                           |
| 1N4683                | 1N4683         | 2.85                   | 3.0 | 3.15  | 50                | 0.8                             | 1.0   | 85                             | 0.9                            |
| 1N4684                | 1N4684         | 3.135                  | 3.3 | 3.465 | 50                | 7.5                             | 1.5   | 80                             | 0.95                           |
| 1N4685                | 1N4685         | 3.42                   | 3.6 | 3.78  | 50                | 7.5                             | 2.0   | 75                             | 0.95                           |
| 1N4686                | 1N4686         | 3.705                  | 3.9 | 4.095 | 50                | 5.0                             | 2.0   | 70                             | 0.97                           |
| 1N4687                | 1N4687         | 4.085                  | 4.3 | 4.515 | 50                | 4.0                             | 2.0   | 65                             | 0.99                           |
| 1N4688                | 1N4688         | 4.465                  | 4.7 | 4.935 | 50                | 10                              | 3.0   | 60                             | 0.99                           |
| 1N4689                | 1N4689         | 4.845                  | 5.1 | 5.355 | 50                | 10                              | 3.0   | 55                             | 0.97                           |
| 1N4690                | 1N4690         | 5.32                   | 5.6 | 5.88  | 50                | 10                              | 4.0   | 50                             | 0.96                           |
| 1N4691                | 1N4691         | 5.89                   | 6.2 | 6.51  | 50                | 10                              | 5.0   | 45                             | 0.95                           |
| 1N4692                | 1N4692         | 6.46                   | 6.8 | 7.14  | 50                | 10                              | 5.1   | 35                             | 0.9                            |
| 1N4693                | 1N4693         | 7.125                  | 7.5 | 7.875 | 50                | 10                              | 5.7   | 31.8                           | 0.75                           |
| 1N4694                | 1N4694         | 7.79                   | 8.2 | 8.61  | 50                | 1.0                             | 6.2   | 29                             | 0.5                            |
| 1N4695                | 1N4695         | 8.265                  | 8.7 | 9.135 | 50                | 1.0                             | 6.6   | 27.4                           | 0.4                            |
| 1N4696                | 1N4696         | 8.645                  | 9.1 | 9.555 | 50                | 1.0                             | 6.9   | 26.2                           | 0.08                           |
| 1N4697                | 1N4697         | 9.50                   | 10  | 10.5  | 50                | 1.0                             | 7.6   | 24.8                           | 0.1                            |
| 1N4698                | 1N4698         | 10.45                  | 11  | 11.55 | 50                | 0.05                            | 8.4   | 21.6                           | 0.11                           |
| 1N4699                | 1N4699         | 11.40                  | 12  | 12.6  | 50                | 0.05                            | 9.1   | 20.4                           | 0.12                           |
| 1N4700                | 1N4700         | 12.35                  | 13  | 13.65 | 50                | 0.05                            | 9.8   | 19                             | 0.13                           |
| 1N4701                | 1N4701         | 13.30                  | 14  | 14.7  | 50                | 0.05                            | 10.6  | 17.5                           | 0.14                           |
| 1N4702                | 1N4702         | 14.25                  | 15  | 15.75 | 50                | 0.05                            | 11.4  | 16.3                           | 0.15                           |
| 1N4703                | 1N4703         | 15.20                  | 16  | 16.8  | 50                | 0.05                            | 12.1  | 15.4                           | 0.16                           |
| 1N4704                | 1N4704         | 16.15                  | 17  | 17.85 | 50                | 0.05                            | 12.9  | 14.5                           | 0.17                           |
| 1N4705                | 1N4705         | 17.10                  | 18  | 18.9  | 50                | 0.05                            | 13.6  | 13.2                           | 0.18                           |
| 1N4706                | 1N4706         | 18.05                  | 19  | 19.95 | 50                | 0.05                            | 14.4  | 12.5                           | 0.19                           |
| 1N4707                | 1N4707         | 19.00                  | 20  | 21    | 50                | 0.01                            | 15.2  | 11.9                           | 0.2                            |
| 1N4711                | 1N4711         | 25.65                  | 27  | 28.35 | 50                | 0.01                            | 20.4  | 8.8                            | 0.27                           |
| 1N4713                | 1N4713         | 28.5                   | 30  | 31.5  | 50                | 0.01                            | 22.8  | 7.9                            | 0.3                            |
| 1N4714                | 1N4714         | 31.35                  | 33  | 34.65 | 50                | 0.01                            | 25    | 7.2                            | 0.33                           |
| 1N4715                | 1N4715         | 34.2                   | 36  | 37.8  | 50                | 0.01                            | 27.3  | 6.6                            | 0.36                           |
| 1N4716                | 1N4716         | 37.05                  | 39  | 40.95 | 50                | 0.01                            | 29.6  | 6.1                            | 0.39                           |
| 1N4717                | 1N4717         | 40.85                  | 43  | 45.15 | 50                | 0.01                            | 32.6  | 5.5                            | 0.43                           |

## Note:

- 1) Tolerance and type number designation (V<sub>Z</sub>)  
The type numbers listed have a standard tolerance of ±5% on the nominal zener voltage. C for 2%.
- 2) Reverse leakage current (I<sub>R</sub>)  
Reverse leakage currents are guaranteed and measured at V<sub>R</sub> shown on the table.
- 3) Maximum zener current rating (I<sub>ZM</sub>)  
Maximum zener current ratings are based on maximum zener voltage of the individual units and JEDEC 250mW rating.
- 4) Maximum voltage change (ΔV<sub>Z</sub>)  
Voltage change is equal to the difference between V<sub>Z</sub> at 100uA and at 10uA

# 1N4678 thru 1N4717



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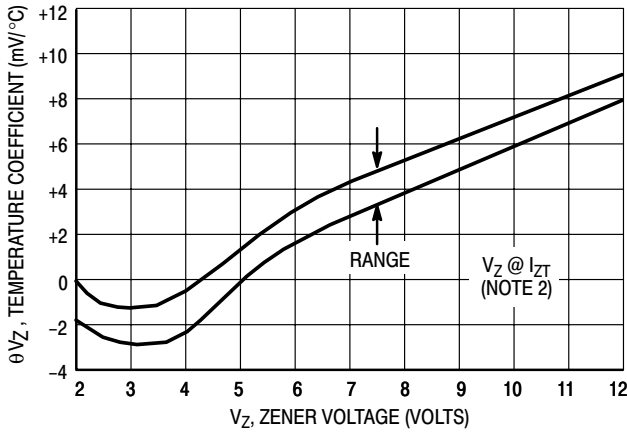


Figure 1. Range for Units to 12 Volts

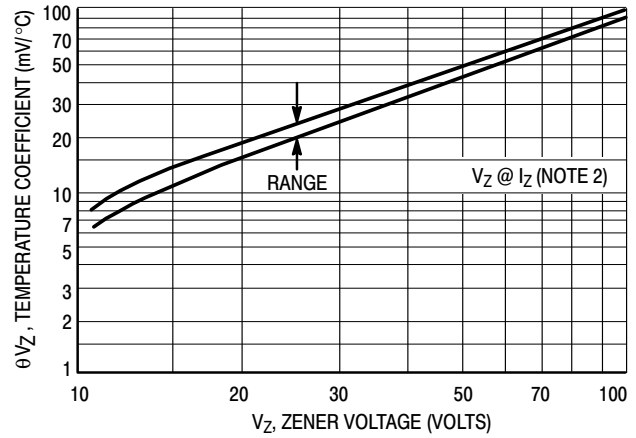


Figure 2. Range for Units 12 to 100 Volts

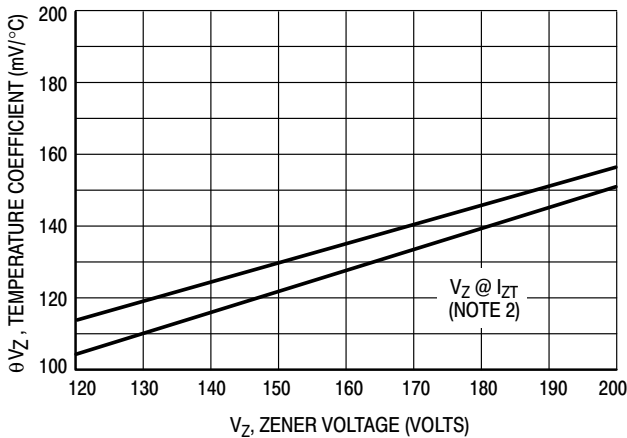


Figure 3. Range for Units 120 to 200 Volts

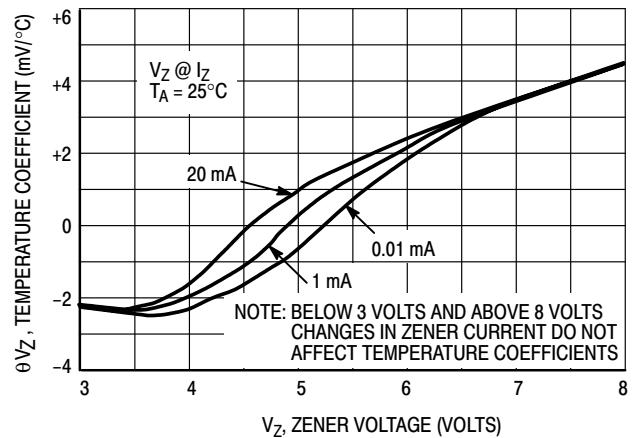


Figure 4. Effect of Zener Current

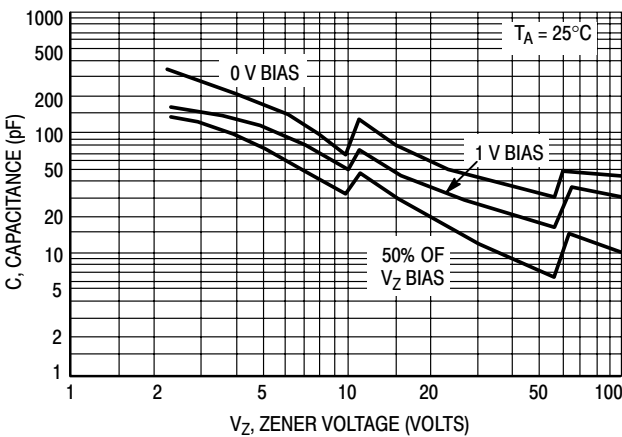


Figure 5. Typical Capacitance 2.4-100 Volts

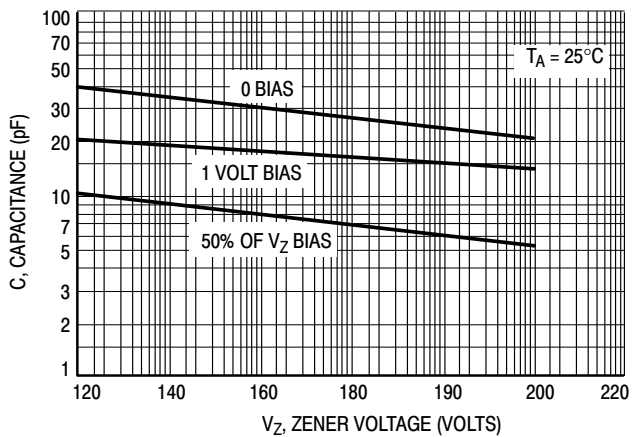


Figure 6. Typical Capacitance 120-200 Volts

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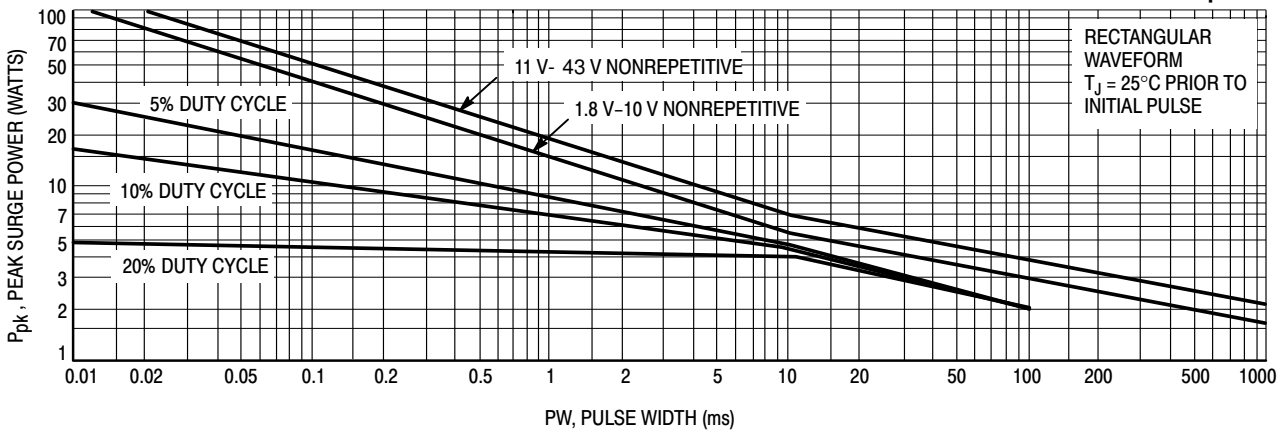


Figure 7. Maximum Surge Power 1.8-91 Volts

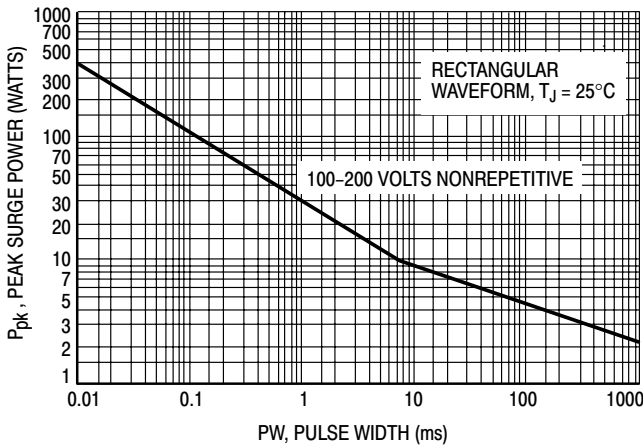


Figure 8. Maximum Surge Power DO-204AH 100-200 Volts

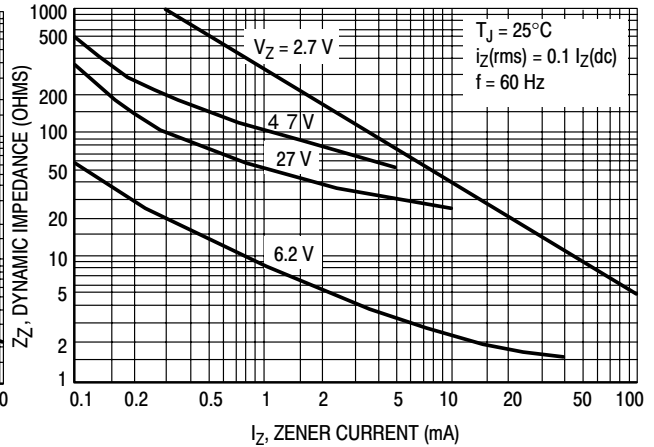


Figure 9. Effect of Zener Current on Zener Impedance

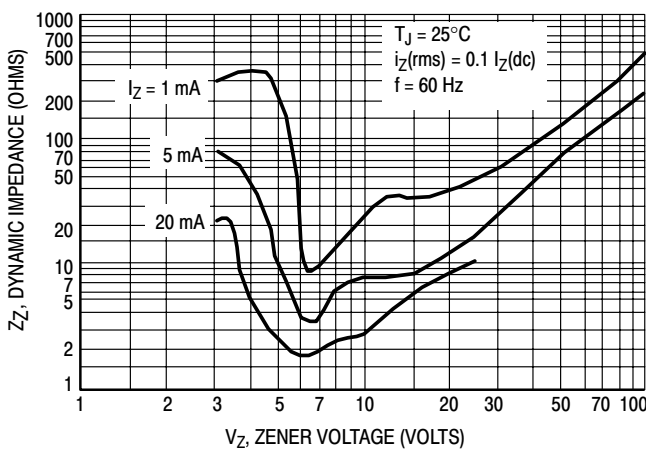


Figure 10. Effect of Zener Voltage on Zener Impedance

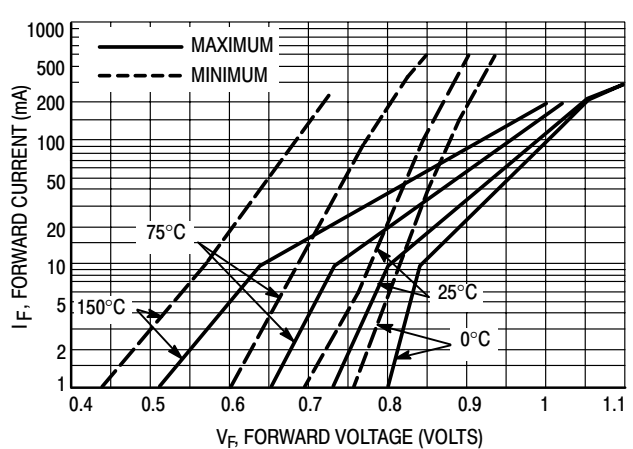


Figure 11. Typical Forward Characteristics



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Ordering Information :

|                |                              |
|----------------|------------------------------|
| Part Number-TP | Tape&Reel: 10Kpcs/Reel       |
| Part Number-AP | Ammo Packing: 5Kpcs/Ammo Box |
| Part Number-BP | Bulk: 100Kpcs/Carton         |

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