

CRD

CRD is used for current stabilization and current limiting.

102

Packing condition
None : E Series, Individually packed in a bag
26Z : E Series, 26mm wide axial taping winding type
26R : E Series, 26mm wide axial taping role type
52Z : E Series, 52mm wide axial taping winding type
52R : E Series, 52mm wide axial taping role type
RE : E Series, Radial taping winding type
T : S Series, Taping role

Pinch off current
e.g.) : $301 \Rightarrow 30 \times 10^1 \mu A = 0.3mA$
 $102 \Rightarrow 10 \times 10^2 \mu A = 1.0mA$
 $452 \Rightarrow 45 \times 10^2 \mu A = 4.5mA$

Graph showing Current (mA) versus Voltage (V) for an n-channel JFET. The curve illustrates the relationship between gate-source voltage and drain current. Key points marked include $V_{GS(off)}$ (pinch-off voltage), $V_{GS(0.8I_D)}$ (gate voltage for $0.8I_D$), $V_{GS(0)}$ (gate voltage for zero current), and $V_{GS(min)}$ (minimum gate voltage for reverse bias). The current levels I_D and $0.8I_D$ are indicated on the y-axis.

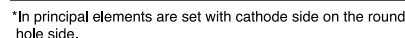
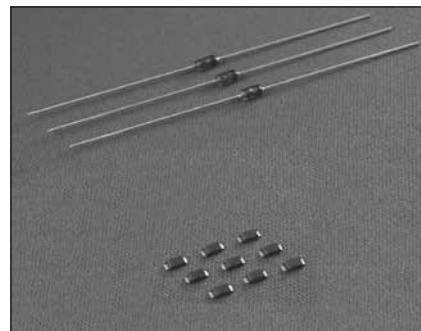
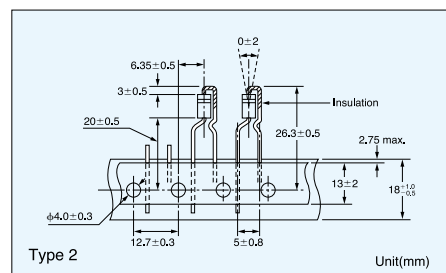
| | E series | S series |
|-------------------------------|---------------------------------------|---|
| Rating power | 300mW | 500mW |
| Rated voltage (Pulse wave) | 100V(E-101~E-562) 50V(E-822~E-183) | 100V(S-101T~S-562T) 50V(S-822T~S-183T) |
| Reverse current | 50mA | |
| Junction temp | 150°C | |
| Operating temp | -30°C~150°C | -40°C~150°C |

| Part No. | Voltage | Part No. | Voltage |
|------------|---------|---------------|---------|
| E101~E-562 | 100V | S-101T~S-562T | 100V |
| E-822 | 30 | S-822T | 50 |
| E-103 | | S-103T | |
| E-123 | | S-123T | |
| E-153 | 25 | S-153T | 40 |
| F-183 | | S-183T | |



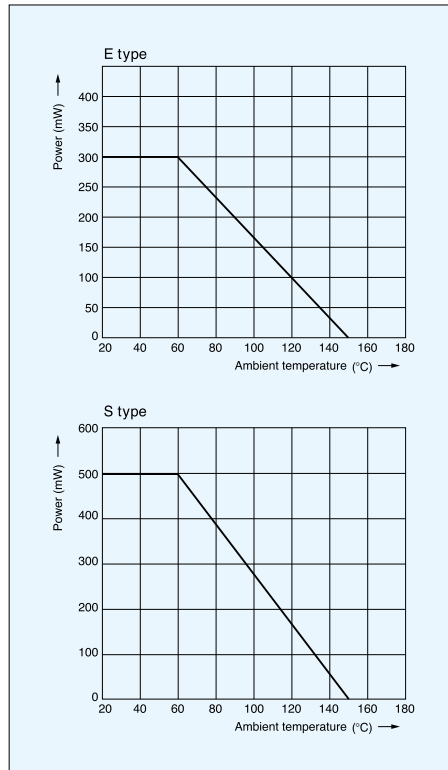
* I_{30}/I_p

There are three Types for taping.

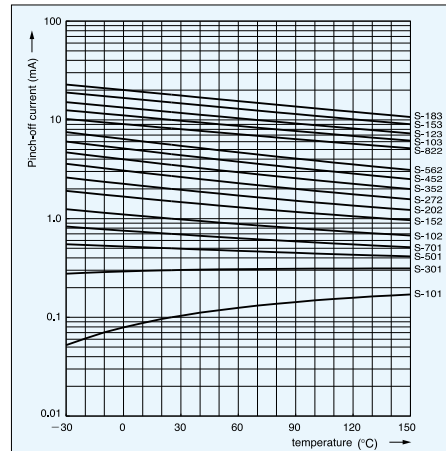


Type 1 Roll.....5000pcs
Box.....2500pcs
Type 2 4000pcs
Type 3 3000pcs

Power derating



Pinch-off current Temperature

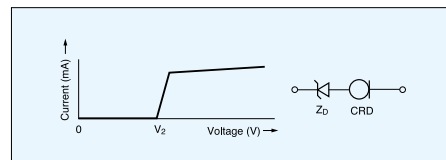


CRD in parallel

The use of CRD in parallel increases their current handling capabilities.

Increasing the voltage range using a zener diode

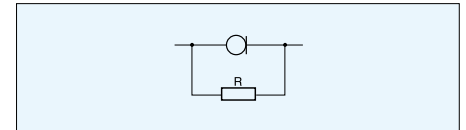
Connecting zener diodes in series with the line ensures that the current is constant in high-voltage area.



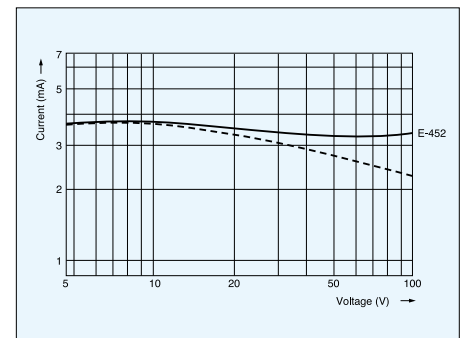
The compensation of current reduction due to self heating

Placing resistors in parallel with CRD can correct any current decrease when the applied voltage increases. The following values are typical for correction resistors.

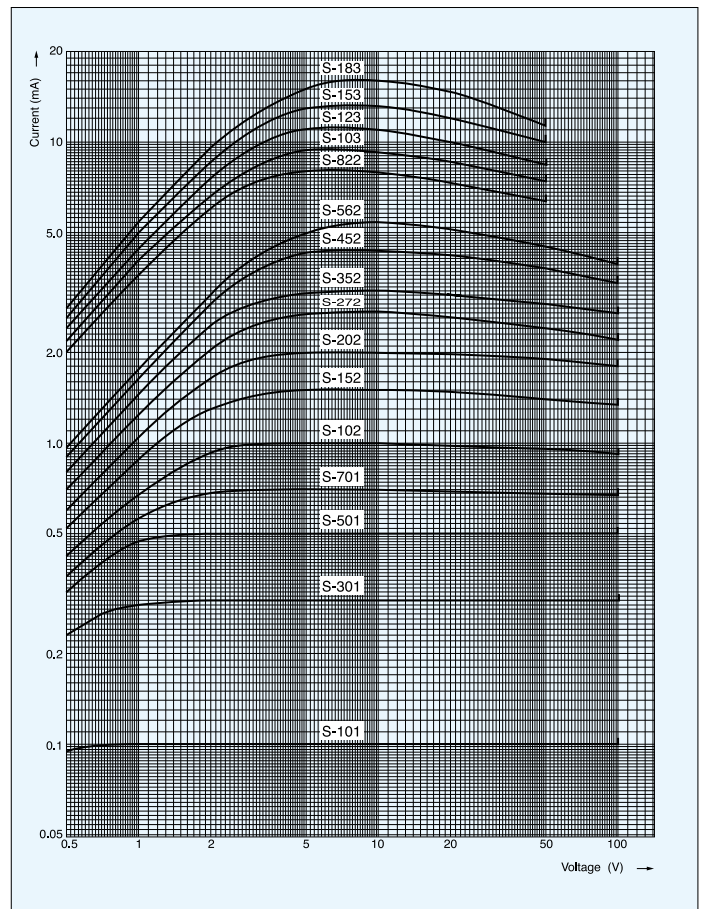
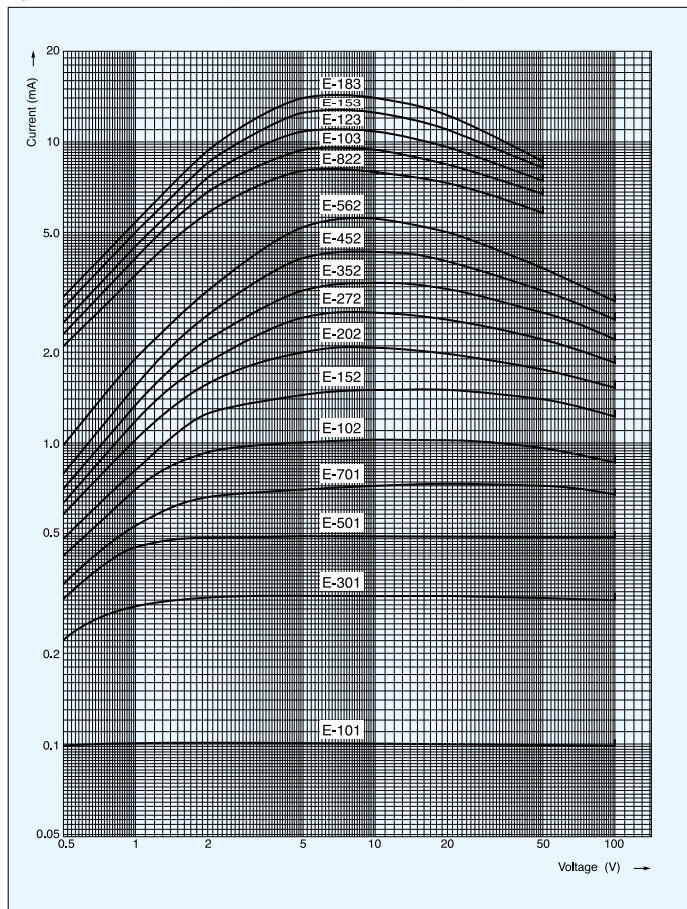
| | | | |
|-------|---------------|-------|--------------|
| E-102 | 1M Ω | E-352 | 82k Ω |
| E-152 | 390k Ω | E-452 | 56k Ω |
| E-202 | 240k Ω | E-562 | 39k Ω |
| E-272 | 120k Ω | | |



Compensative resistor is not necessary if the current value is less than 1 mA.



Dynamic characteristics (saturation characteristics)



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Semitec:

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[S-101T](#) [S-102T](#) [S-103T](#) [S-123T](#) [S-152T](#) [S-153T](#) [S-183T](#) [S-202T](#) [S-272T](#) [S-301T](#) [S-352T](#) [S-452T](#) [S-501T](#) [S-562T](#) [S-701T](#) [S-822T](#)