

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

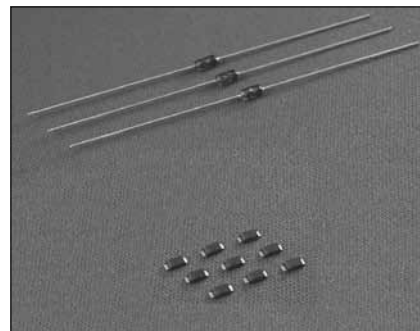
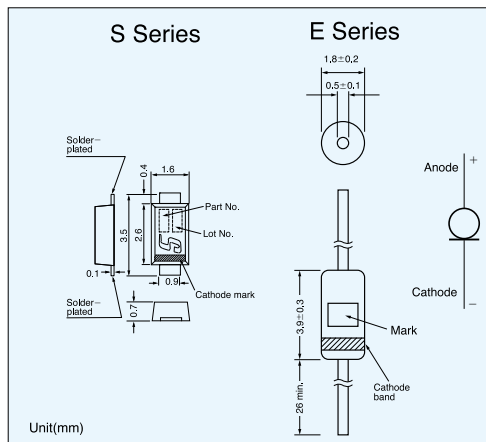
Pinch off current
e.g.) : $301 \Rightarrow 30 \times 10^1 \mu\text{A} = 0.3\text{mA}$
 $102 \Rightarrow 10 \times 10^2 \mu\text{A} = 1.0\text{mA}$
 $452 \Rightarrow 45 \times 10^3 \mu\text{A} = 4.5\text{mA}$

E : Lead wire type
S : SMD type

Graph of Current (mA) vs. Voltage (V) for an n-channel JFET. The curve shows the relationship between gate-source voltage and drain current. Key points marked include V_{GS} (threshold voltage), $V_{GS(off)}$ (pinch-off voltage), $V_{GS} = 0V$, $V_{GS} = V_{GS(off)}/2$ (where $I_D = 0.8 I_{DSS}$), and $V_{GS} = V_{GS(off)}$ (where $I_D = I_{DSS}$). The y-axis is labeled Current (mA) and the x-axis is labeled Voltage (V).

	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

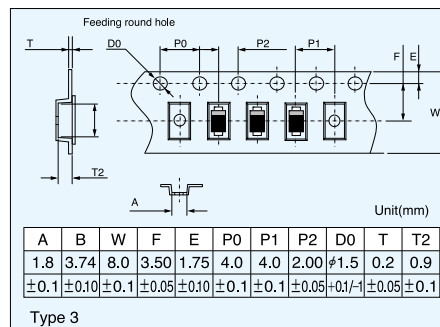
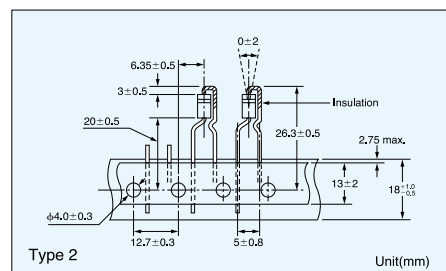
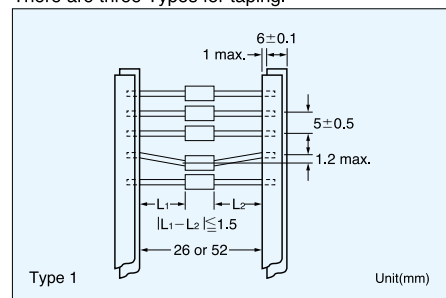
Part No.	Voltage	Part No.	Voltage
E101~E-562	100V	S-101T~S-562T	100V
E-822	30	S-822T	50
E-103		S-103T	
E-123		S-123T	
E-153	25	S-153T	40
F-183		S-183T	



Part No.		Pinch-off current ^{*1}		Limiting current ^{*2}		Limiting current ratio $I_{100V}/I_p^* I_{30V}/I_p$	Temperature ^{*3} Coefficient (% / °C)
SMD	With Lead	Test Voltage	I_p (mA) Typical	min~max	$V_K(V)$		
S-101T	E-101	10V	0.10	0.05~0.21	0.5	0.8 I_{pmin}	+2.10~-+0.10
S-301T	E-301		0.30	0.20~0.42	0.8		+0.40~-0.20
S-501T	E-501		0.50	0.40~0.63	1.1		+0.15~-0.25
S-701T	E-701		0.70	0.60~0.92	1.4		0.00~-0.32
S-102T	E-102		1.00	0.88~1.32	1.7		-0.10~-0.37
S-152T	E-152		1.50	1.28~1.72	2.0		-0.13~-0.40
S-202T	E-202		2.00	1.68~2.32	2.3		-0.15~-0.42
S-272T	E-272		2.70	2.28~3.10	2.7		-0.18~-0.45
S-352T	E-352		3.50	3.00~4.10	3.2		-0.20~-0.47
S-452T	E-452		4.50	3.90~5.10	3.7		-0.22~-0.50
S-562T	E-562		5.60	5.00~6.50	4.5		-0.25~-0.53
S-822T	E-822		8.20	6.56~9.84	3.1		-0.25~-0.45
S-103T	E-103		10.0	8.00~12.0	3.5		-0.25~-0.45
S-123T	E-123		12.0	9.60~14.4	3.8		-0.25~-0.45
S-153T	E-153		15.0	12.0~18.0	4.3		-0.25~-0.45
S-183T	E-183		18.0	16.0~20.0	4.6		-0.25~-0.45

*130/10

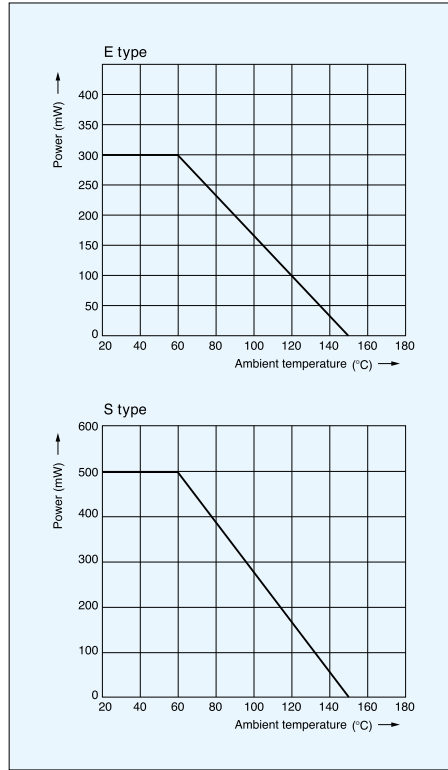
There are three Types for taping.



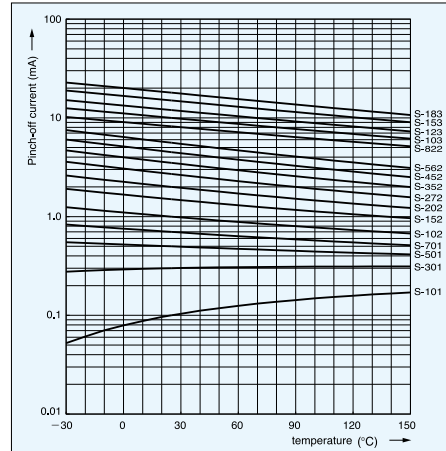
Minimum taping quantity for

Type 2	4000pcs
Type 3	3000pcs

Power derating



Pinch-off current Temperature

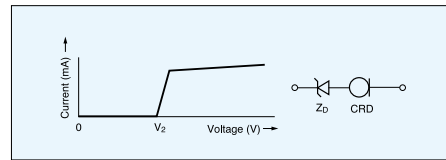


CRD in parallel

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

Increasing the voltage range using a zener diode

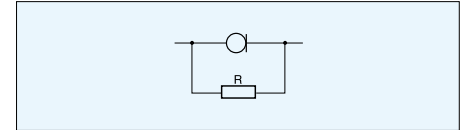
Connecting zener diodes in series with the line ensures that the current is constant in high-voltage area.



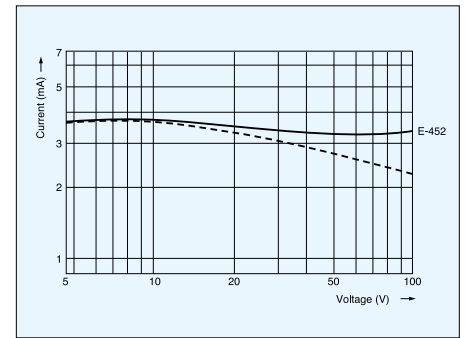
The compensation of current reduction due to self heating

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

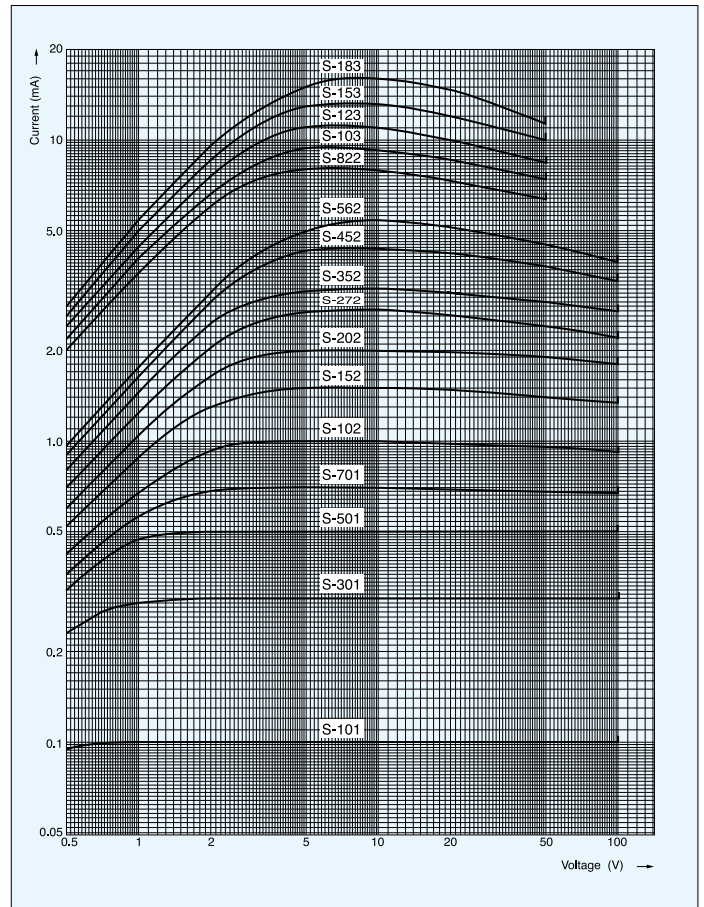
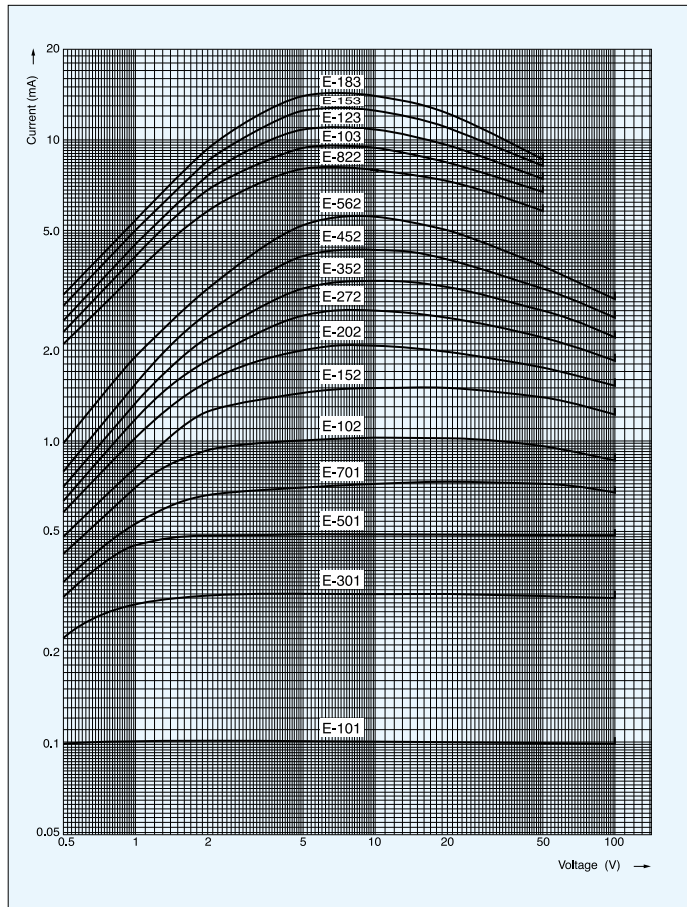
E-102	1M Ω	E-352	82k Ω
E-152	390k Ω	E-452	56k Ω
E-202	240k Ω	E-562	39k Ω
E-272	120k Ω		



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



Dynamic characteristics (saturation characteristics)



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Semitec:

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