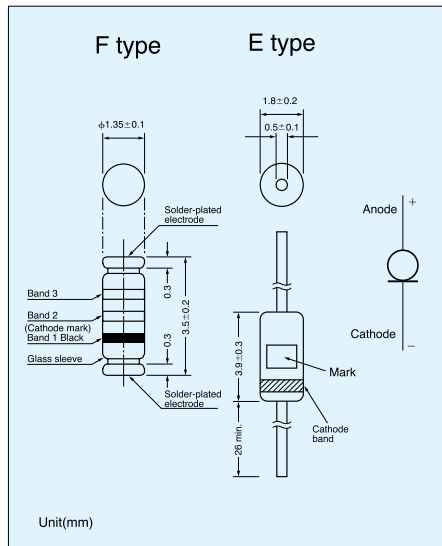


## CURRENT REGULATIVE DIODE

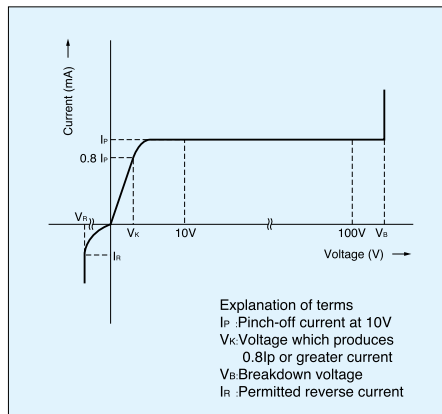
# CRD

CRD is a diode which supplies constant current to an electric circuit, even when power supply voltage fluctuations or load impedance fluctuations occur.

CRD is used for current stabilization and current limiting.



### Basic characteristics

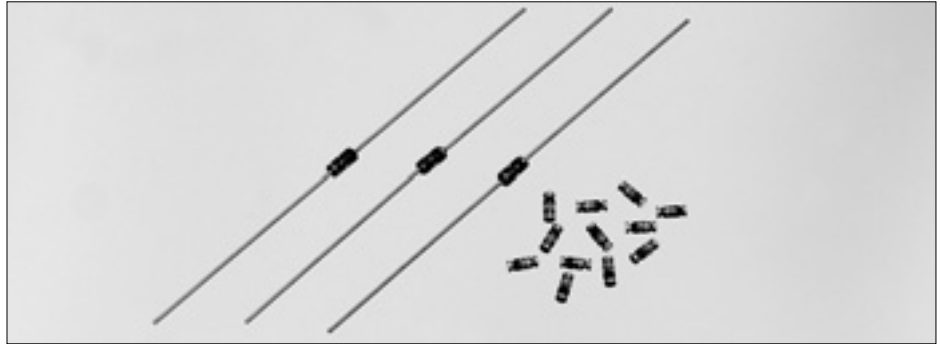


### Maximum ratings

	E type	F type
Rating power	300mW	400mW
Thermal resistance	300°C/W	150°C/W
Reverse current	50mA	
Operating temp	-30°C~150°C	

### Maximum rating voltage

Part No.	Voltage	Part No.	Voltage
E101L~E-562	100V	F101L~F-562	100V
E-822	30	F-822	50
E-103	30	F-103	42
E-123	30	F-123	34
E-153	25	F-153	28



### Specifications

Part No.	Pinch-off current*1	Limiting current*2	Dynamic*3 impedance	Limiting current ratio	Temperature*4 coefficient	Indication					
						F type	E	Type			
lead less	with lead	Test Voltage	$I_p$ (mA)	$V_k$ (V)	$I_k$ (mA)	$Z_T$ (M $\Omega$ )	$I_{100V}/I_p^*$	(%/°C)	Band 2	Band 3	
F-101L	E-101L	10V	0.01~0.06	0.4	0.8Ipmin.	8.00	1.1 max.	+2.10~+0.10	Light blue	White	1L
F-101	E-101	10V	0.05~0.21	0.5	0.8Ipmin.	6.00	1.1 max.	+2.10~+0.10	Light blue	Pink	01
F-301	E-301	10V	0.20~0.42	0.8	0.8Ipmin.	4.00	1.1 max.	+0.40~-0.20	Light blue	Orange	03
F-501	E-501	10V	0.40~0.63	1.1	0.8Ipmin.	2.00	1.1 max.	+0.15~-0.25	Light blue	Yellow green	05
F-701	E-701	10V	0.60~0.92	1.4	0.8Ipmin.	1.00	1.1 max.	0.00~-0.32	Light blue	Blue	07
F-102	E-102	10V	0.88~1.32	1.7	0.8Ipmin.	0.65	1.1 max.	-0.10~-0.37	Yellow green	Pink	10
F-152	E-152	10V	1.28~1.72	2.0	0.8Ipmin.	0.40	1.1 max.	-0.13~-0.40	Yellow green	Orange	15
F-202	E-202	10V	1.68~2.32	2.3	0.8Ipmin.	0.25	1.1 max.	-0.15~-0.42	Yellow green	Yellow green	20
F-272	E-272	10V	2.28~3.10	2.7	0.8Ipmin.	0.15	1.1 max.	-0.18~-0.45	Yellow green	Light blue	27
F-352	E-352	10V	3.00~4.10	3.2	0.8Ipmin.	0.10	1.1 max.	-0.20~-0.47	Yellow green	Blue	35
F-452	E-452	10V	3.90~5.10	3.7	0.8Ipmin.	0.07	1.1 max.	-0.22~-0.50	Yellow green	Purple	45
F-562	E-562	10V	5.00~6.50	4.5	0.8Ipmin.	0.04	1.1 max.	-0.25~-0.53	Yellow green	White	56
F-822	E-822	10V	6.56~9.84	3.1	0.8Ipmin.	0.32	*1.0max.	-0.25~-0.45	Yellow green	Yellow	82
F-103	E-103	10V	8.00~12.0	3.5	0.8Ipmin.	0.17	*1.0max.	-0.25~-0.45	Orange	Pink	10
F-123	E-123	10V	9.60~14.4	3.8	0.8Ipmin.	0.08	*1.0max.	-0.25~-0.45	Orange	White	12
F-153	E-153	10V	12.0~18.0	4.3	0.8Ipmin.	0.03	*1.0max.	-0.25~-0.45	Orange	Light blue	15

\*1,2 Pinch-off current limiting current are measured by impulse wave at 25°C

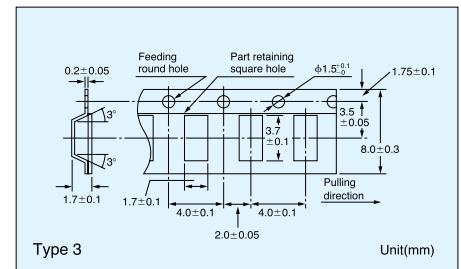
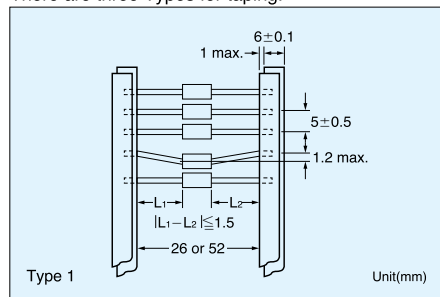
\*3  $Z_T$  is minimum AC impedance when small AC signal voltage of 10KHz is added to 25 V<sub>DC</sub> bias.  $Z_T$  is used as the reference value.

\*4 Temperature coefficient is measured between 25°C and 50°C.

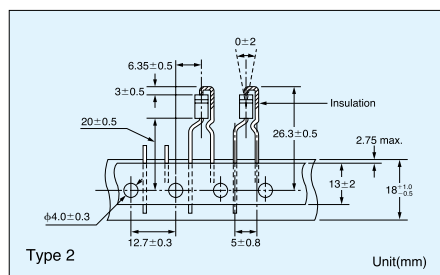
\*I<sub>100V</sub>/I<sub>p</sub>

### Taping

There are three Types for taping.



\*In principal elements are set with cathode side on the round hole side.



### Minimum taping quantity for

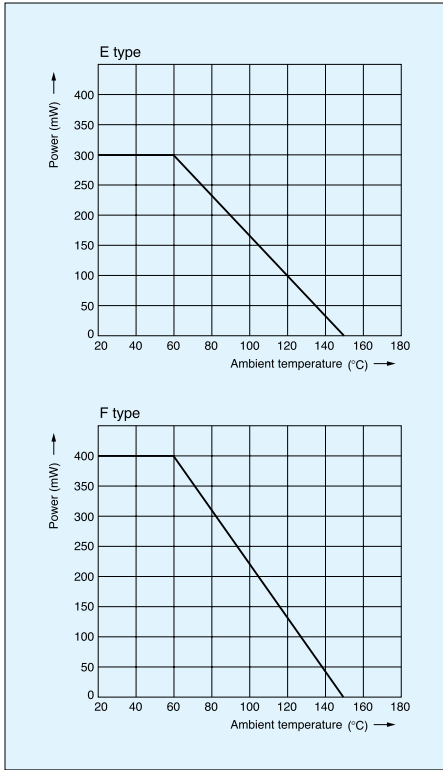
Type 1 Roll.....5000pcs

Box.....2500pcs

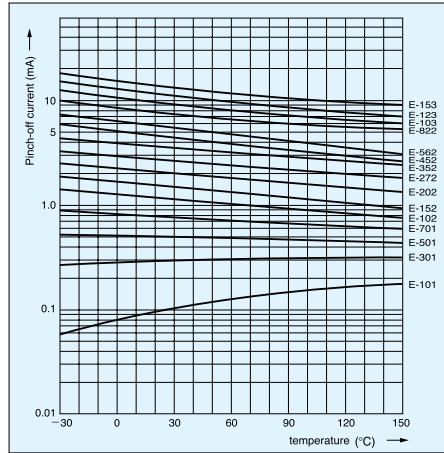
Type 2 4000pcs

Type 3 2500pcs

### Power derating



### Pinch-off current Temperature

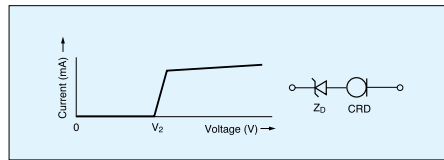


### CRD in parallel

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

### Increasing the voltage range using a zener diode

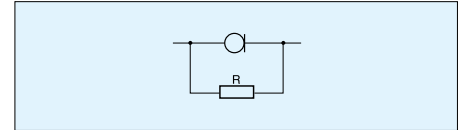
Connecting zener diodes in series with the line ensures that the current is constant in high-voltage area.



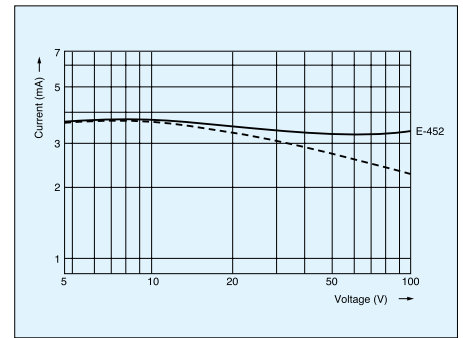
### The compensation of current reduction due to self heating

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	1MΩ	E-352	82kΩ
E-152	390kΩ	E-452	56kΩ
E-202	240kΩ	E-562	39kΩ
E-272	120kΩ		



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



### Dynamic characteristics (saturation characteristics)

