



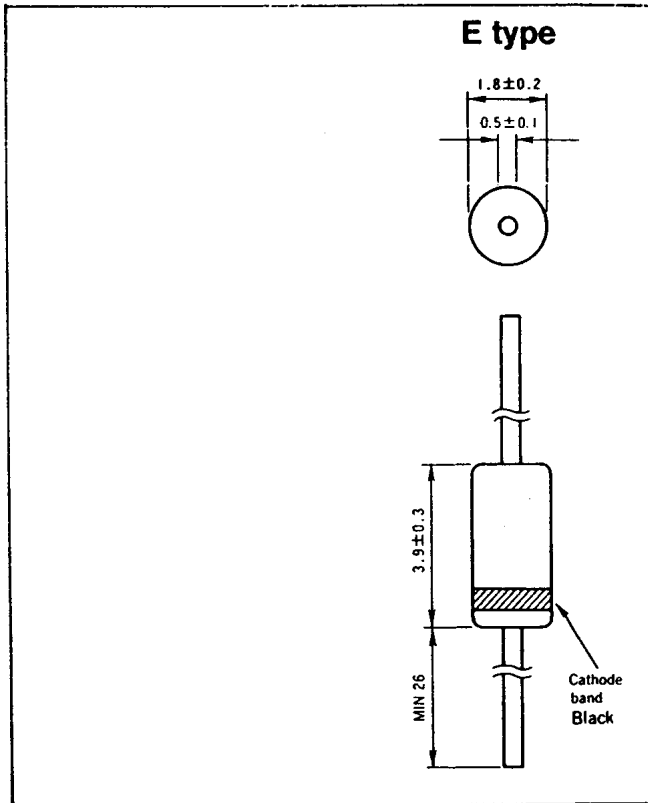
ELFA artikelnr.

70-095-09 E101 konst strömdiod
70-095-25 E501 konst strömdiod
70-095-41 E102 konst strömdiod
70-095-66 E202 konst strömdiod
70-095-82 E452 konst strömdiod

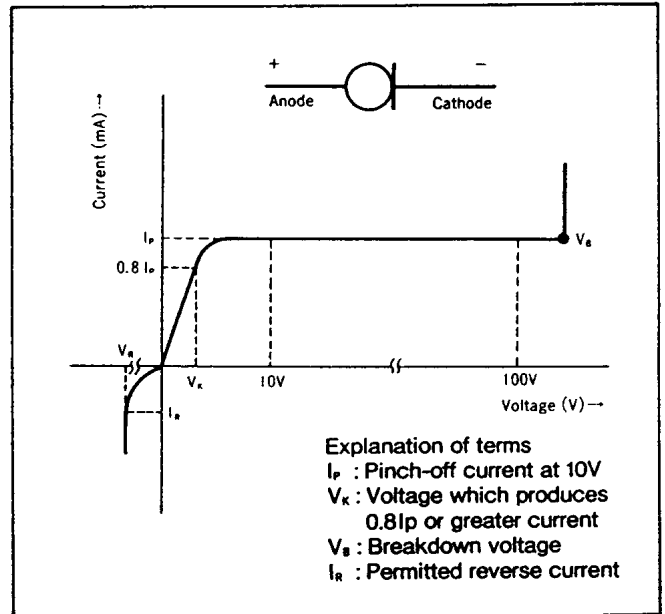
70-098-06 E562 konst strömdiod
70-098-22 E822 konst strömdiod
70-098-48 E103 konst strömdiod
70-098-63 E123 konst strömdiod
70-098-89 E153 konst strömdiod

CURRENT REGULATIVE DIODE CRD

CRD is a diode which supplies constant current to an electronic circuit, even when power supply voltage fluctuations or load impedance fluctuations occur. CRD is used for current stabilization and current limiting.



Basic characteristics



Maximum rating voltage

Type	Voltage	Type	Voltage
E101L~E-562	100V	F-101L~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

Maximum ratings

Type	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	



Specifications

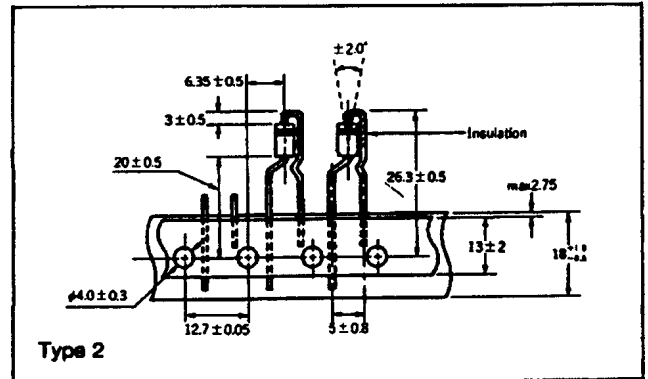
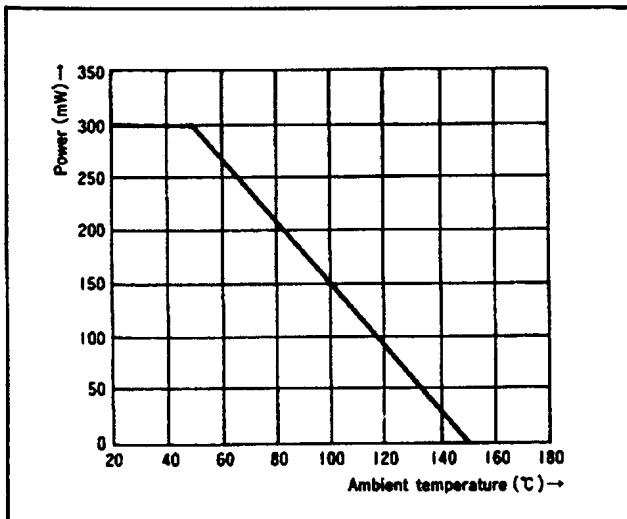
Type		Pinch-off current *1		Limiting current *2		Dynamic *3 impedance Z ₁ (MΩ)	Limiting current ratio 110V/Ip #130V/Ip	Temperature *4 coefficient (%/°C)	Indication			
lead less	with lead	Test Voltage	Ip(mA)	Vk(V)	Ik(mA)				F type		E type	
										Band 2	Band 3	
F-101L	E-101L	10V	0.01~0.06	0.4	min0.81P	8.00	max 1.1	+2.10~-+0.10	Light blue	White	1L	
F-101	E-101	10V	0.05~0.21	0.5	min0.81P	6.00	max 1.1	+2.10~-+0.10	Light blue	Pink	01	
F-301	E-301	10V	0.20~0.42	0.8	min0.81P	4.00	max 1.1	+0.40~- -0.20	Light blue	orange	03	
F-501	E-501	10V	0.40~0.63	1.1	min0.81P	2.00	max 1.1	+0.15~- -0.25	Light blue	Yellow green	05	
F-701	E-701	10V	0.60~0.92	1.4	min0.81P	1.00	max 1.1	0.00~- -0.32	Light blue	Blue	07	
F-102	E-102	10V	0.88~1.32	1.7	min0.81P	0.65	max 1.1	-0.10~- -0.37	Yellow green	Pink	10	
F-152	E-152	10V	1.28~1.72	2.0	min0.81P	0.40	max 1.1	-0.13~- -0.40	Yellow green	orange	15	
F-202	E-202	10V	1.68~2.32	2.3	min0.81P	0.25	max 1.1	-0.15~- -0.42	Yellow green	Yellow green	20	
F-272	E-272	10V	2.28~3.10	2.7	min0.81P	0.15	max 1.1	-0.18~- -0.45	Yellow green	Light blue	27	
F-352	E-352	10V	3.00~4.10	3.2	min0.81P	0.10	max 1.1	-0.20~- -0.47	Yellow green	Blue	35	
F-452	E-452	10V	3.90~5.10	3.7	min0.81P	0.07	max 1.1	-0.22~- -0.50	Yellow green	Purple	45	
F-562	E-562	10V	5.00~6.50	4.5	min0.81P	0.04	max 1.1	-0.25~- -0.53	Yellow green	White	56	
F-822	E-822	10V	6.56~9.84	3.1	min0.81P	0.32	* max1.0	-0.25~- -0.45	Yellow green	Yellow	82	
F-103	E-103	10V	8.00~12.0	3.5	min0.81P	0.17	* max1.0	-0.25~- -0.45	Orange	Pink	10	
F-123	E-123	10V	9.60~14.4	3.8	min0.81P	0.08	* max1.0	-0.25~- -0.45	Orange	White	12	
F-153	E-153	10V	12.0~18.0	4.3	min0.81P	0.03	* max1.0	-0.25~- -0.45	Orange	Light blue	15	

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

*3 Z₁ is minimum AC impedance when small AC signal voltage of 10KHz is added to 25 V_{DC bias}. Z₁ is used as the reference value.

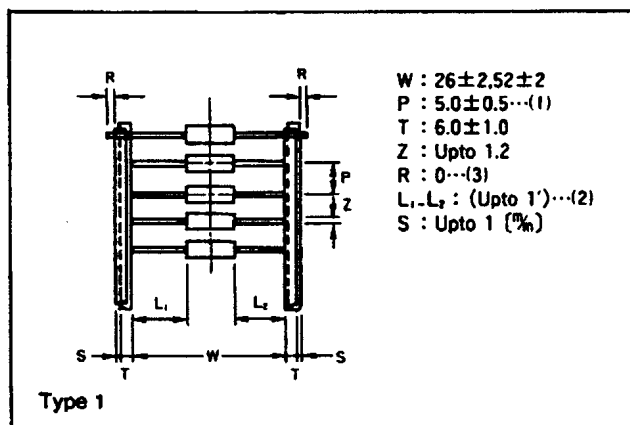
*4 Temperature coefficient is measured between 25°C and 50°C.

Power derating



Taping

There are three Types as follows:



Minimum taping quantity for

- Type 1 Roll..... 5000pcs
- Box..... 2500pcs
- Type 2 4000pcs

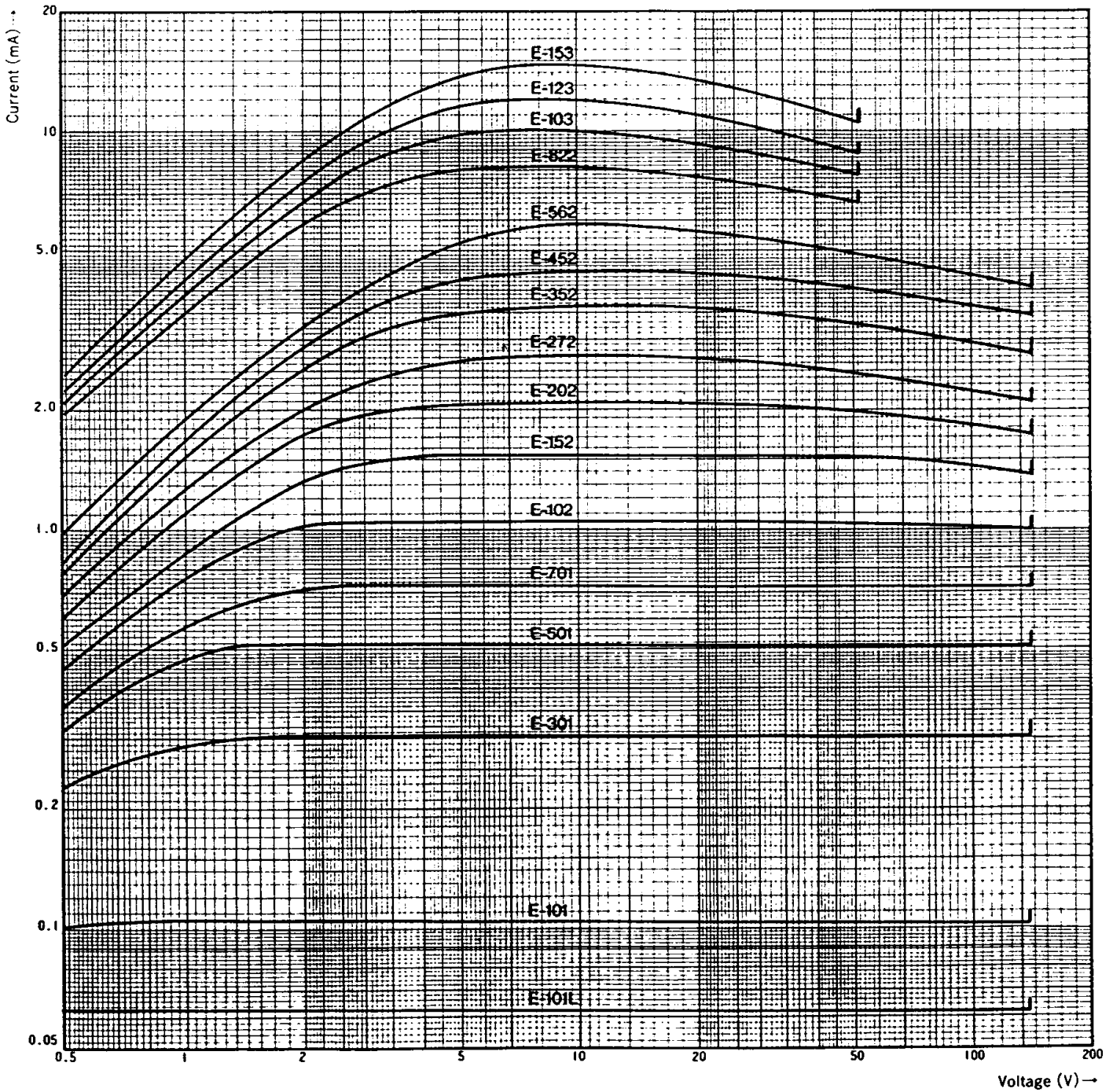
(1) Cumulative pitch tolerance : ±2 mm for 20 pitches

(2) Absolute value between L₁ and L₂.

(3) Lead terminal should not protrude from the tape.

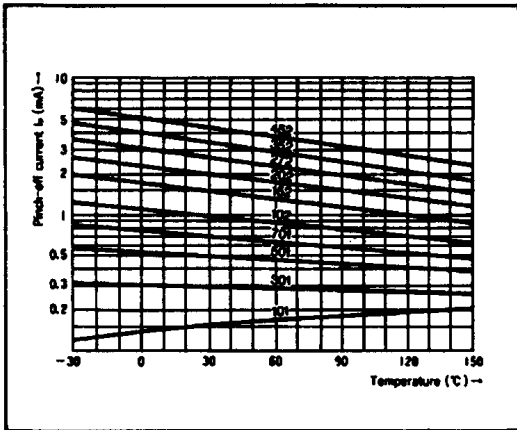


Dynamic characteristics (saturation characteristics)





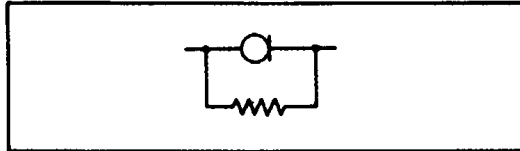
Pinch-off current-Temperature



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.

102	1 MΩ
152	390 kΩ
202	240 kΩ
272	120 kΩ
352	82 kΩ

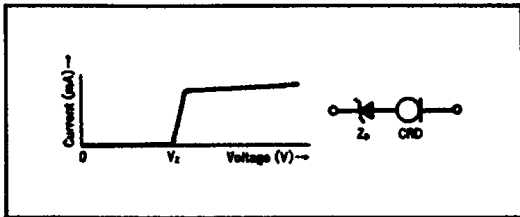


CRD in parallel

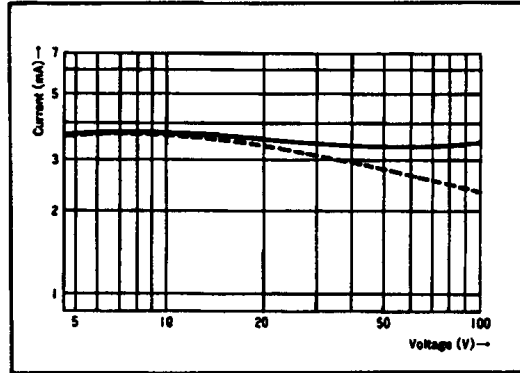
The use of CRD in parallel increases their current handling capabilities.

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.



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



Application

(a) Emitter or source bias

(b) DC coupling

(c) Differential amplification

(d) Low voltage regulator

(e) Combination of CRD and VFD

(f) Timing circuit

(g) Current amplification

(h) Sawtooth waveform