

## SF501-SF506

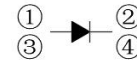
### FEATURES

- High current capability
- Low forward voltage drop
- Low power loss, high efficiency
- High surge capability
- High temperature soldering guaranteed
- Mounting position: any

### TO-251(I-PAK)



### TO-252(D-PAK)



## MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Ratings at 25°C ambient temperature unless otherwise specified.

CHARACTERISTICS	TO-251	SF501VS	SF502VS	SF503VS	SF504VS	SF505VS	SF506VS	Units
	TO-252	SF501DS	SF502DS	SF503DS	SF504DS	SF505DS	SF506DS	
Maximum Recurrent Peak Reverse Voltage	$V_{RRM}$	100	200	300	400	500	600	V
Maximum RMS voltage	$V_{RMS}$	70	140	210	280	350	420	V
Maximum DC Blocking Voltage	$V_{DC}$	100	200	300	400	500	600	V
Maximum Average Forward Rectified Current	$I_{F(AV)}$	5.0						A
Peak Forward Surge Current, 8.3ms Single Half Sine-wave Superimposed on Rated Load (JEDEC method)	$I_{FSM}$	150						A
Max Instantaneous Forward Voltage at 5 A DC	$V_F$	0.95		1.30		1.70		V
Maximum DC Reverse Current $T_a = 25^\circ\text{C}$ at Rated DC Reverse Voltage $T_a = 125^\circ\text{C}$	$I_R$	1 300						$\mu\text{A}$
Typical Junction Capacitance $f=1\text{MHz}, 4\text{V DC}$	$C_j$	45						pF
Typical Thermal Resistance <sup>(1)</sup>	$R_{\theta JA}$	15						$^\circ\text{C/W}$
Maximum Reverse Recovery Time <sup>(2)</sup>	$t_{rr}$	35						ns
Operating Junction Temperature Range	$T_j$	-55 ~ +150						$^\circ\text{C}$
Storage Temperature Range	$T_{stg}$	-55 ~ +150						$^\circ\text{C}$

(1) P.C.B. mounted with 10cm x 10cm x 1mm copper pad areas.

(2) Measured with  $\hat{I}_F = 0.5\text{ A}$ ,  $\hat{I}_R = 1\text{ A}$ ,  $\hat{I}_{rr} = 0.25\text{ A}$ .

## Typical Characteristics

Fig.1 Maximum Average Forward Current Rating

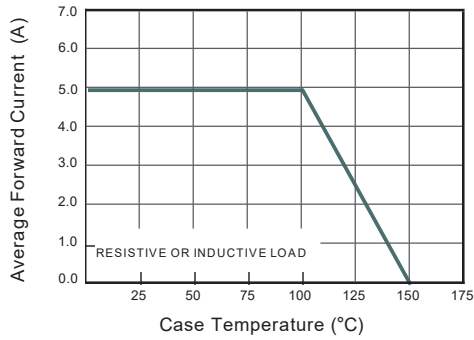


Fig.2 Typical Reverse Characteristics

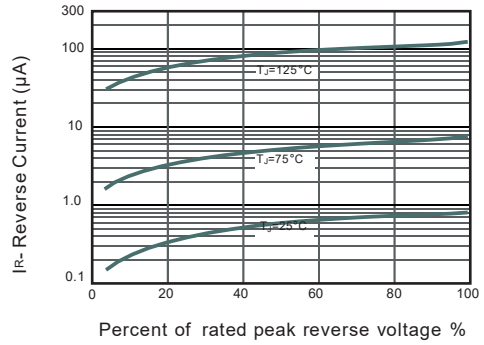


Fig.4 Typical Forward Characteristics

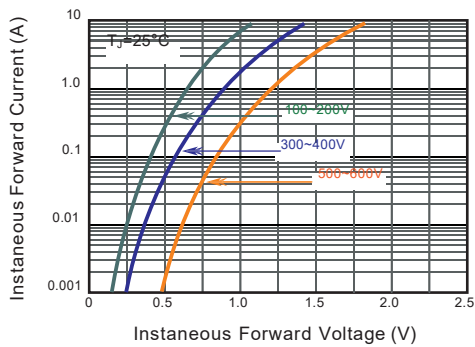


Fig.4 Typical Junction Capacitance

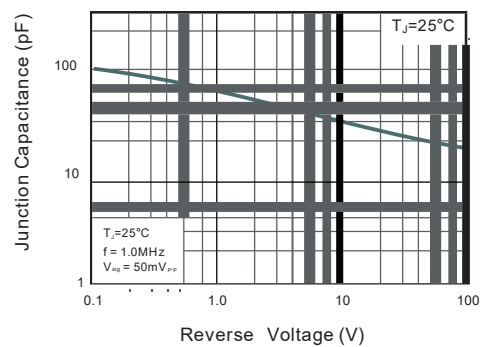
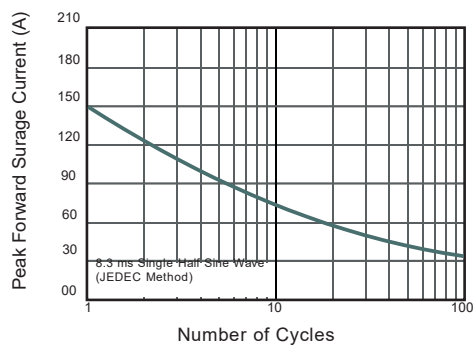
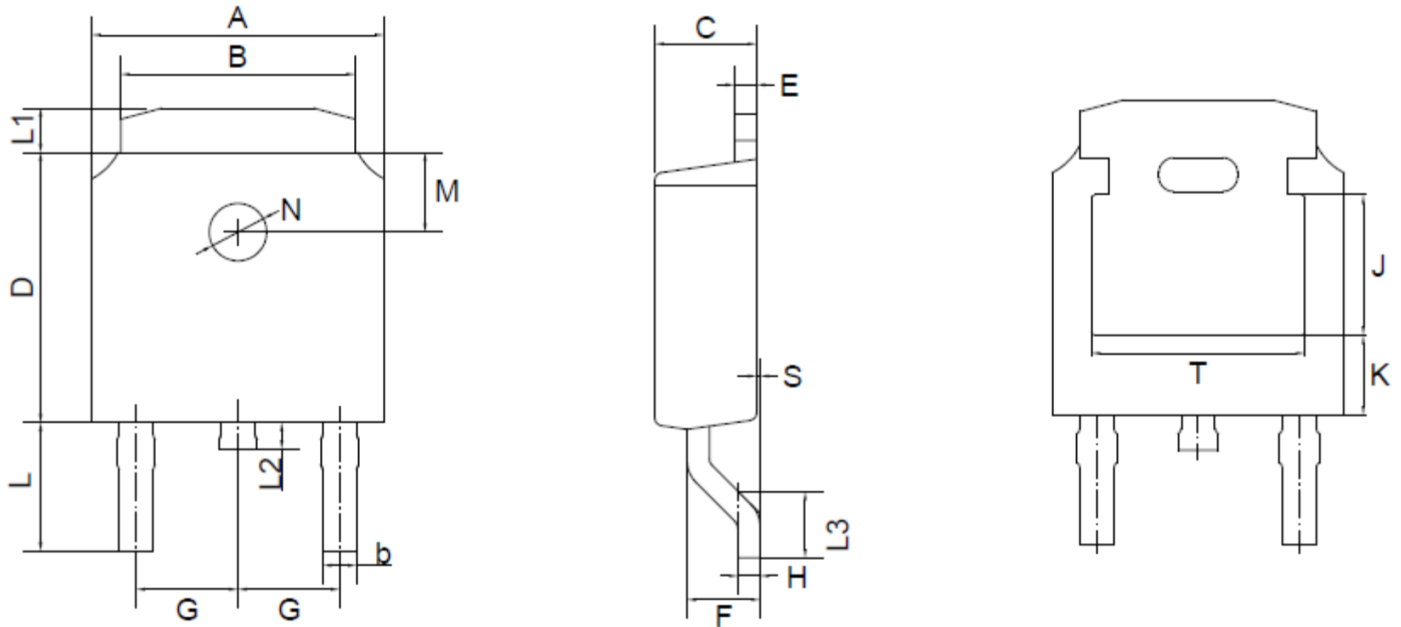


Fig.5 Maximum Non-Repetitive Peak Forward Surge Current



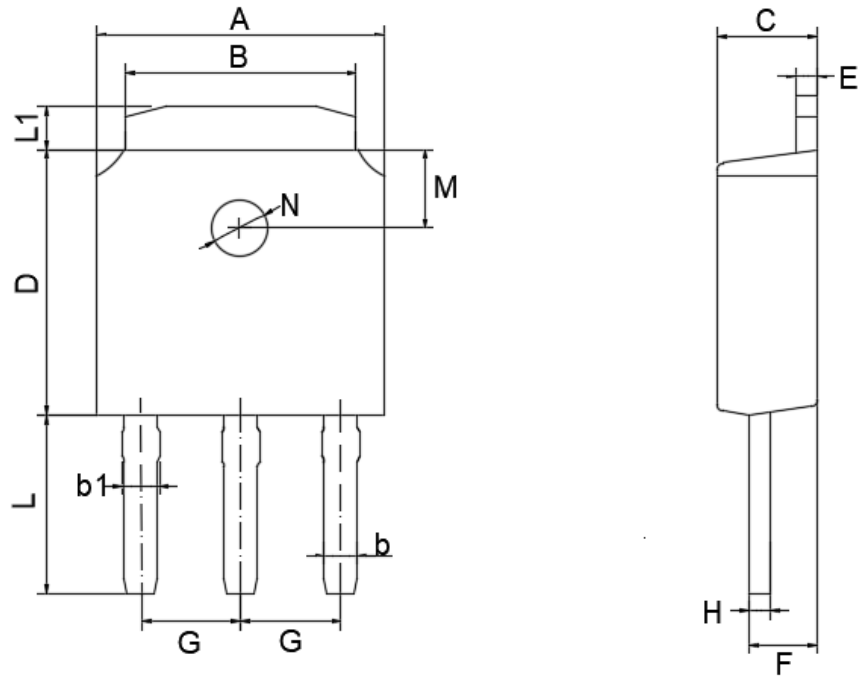
TO-252(D-PAK) Package Outline Dimensions



TO-252(D-PAK) mechanical data

UNIT	A	B	b	C	D	E	F	G	H	L	L1	L2	L3	S	M	N	J	K	T	
mm	max	6.7	5.5	0.8	2.5	6.3	0.6	1.8	2.29	0.55	3.1	1.2	1.0	1.75	0.1	1.8	1.3	3.16	1.80	4.83
	min	6.3	5.1	0.3	2.1	5.9	0.4	1.3		TYPICAL	0.45	2.7	0.8	0.6	1.40		0.0	TYPICAL	TYPICAL	ref.
mil	max	264	217	31	98	248	24	71	90	22	122	47	39	69	4	71	51	124	71	190
	min	248	201	12	83	232	16	51		TYPICAL	18	106	31	24	55		0	TYPICAL	TYPICAL	ref.

TO-251(I-PAK) Package Outline Dimensions



TO-251(I-PAK) mechanical data

UNIT		A	B	b	b1	C	D	E	F	G	H	L	L1	M	N
mm	max	6.70	5.50	0.80	0.90	2.50	6.30	0.60	1.80	2.29	0.55	4.30	1.20	1.8	1.3
	min	6.30	5.10	0.30	0.76	2.10	5.90	0.40	1.30	TYPICAL	0.45	3.90	0.80	TYPICAL	TYPICAL
mil	max	264	217	31	35	98	248	24	71	90	22	169	47	71	51
	min	248	201	12	30	83	232	16	51	TYPICAL	18	154	31	TYPICAL	TYPICAL