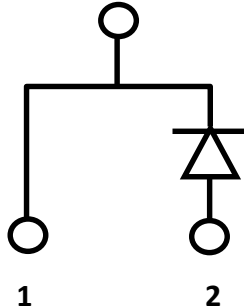


Package TO-252-2L



1 2

Inner Circuit



Product Summary

V_R	600 V	
I_F	5A ($T_c=135^\circ\text{C}$)	4A ($T_c=146^\circ\text{C}$)
Q_C	10.5 nC	



Features

- ◆ Low Conduction and Switching Loss
- ◆ Positive Temperature Coefficient on V_F
- ◆ Temperature Independent Switching Behavior
- ◆ Fast Reverse Recovery
- ◆ High Surge Current Capability
- ◆ Pb-free lead plating

Benefits

- ◆ Higher System Efficiency
- ◆ Parallel Device Convenience
- ◆ High Temperature Application
- ◆ High Frequency Operation
- ◆ Hard Switching & High Reliability
- ◆ Environmental Protection

Applications

- ◆ SMPS
- ◆ PFC
- ◆ Solar/ Wind Renewable Energy
- ◆ Power Inverters
- ◆ Motor Drives

Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	$T_J = 25^\circ\text{C}$	600	V
Peak Reverse Surge Voltage	V_{RSM}	$T_J = 25^\circ\text{C}$	600	V
DC Blocking Voltage	V_R	$T_J = 25^\circ\text{C}$	600	V
Continuous Forward Current	I_F	$T_C = 25^\circ\text{C}$	10.5	A
		$T_C = 135^\circ\text{C}$	5	A
		$T_C = 146^\circ\text{C}$	4	A

Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Unit
Non-Repetitive Peak Forward Surge Current	I _{FSM}	T _C = 25°C, T _P = 10 ms Half Sine Wave	32	A
		T _C = 125°C, T _P = 10 ms Half Sine Wave	25	A
		T _C = 25°C, T _P = 10 μs Pulse	120	A
Repetitive Peak Forward Surge Current	I _{FRM}	T _C = 25°C, T _P = 10 ms Half Sine Wave, D = 0.1	21	A
		T _C = 125°C, T _P = 10 ms Half Sine Wave, D = 0.1	15	A
Power Dissipation	P _D	T _C = 25°C	38	W
		T _C = 125°C	12	W
Operating Junction and Storage Temperature	T _J		175	°C
	T _{stg}		-55 to 175	°C
Thermal Resistance Junction to Case	R _{θJC}		3.9	°C/W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit
DC Blocking Voltage	V _{DC}	I _R = 100 μA, T _J = 25°C	> 650		V
Forward Voltage	V _F	I _F = 4A, T _J = 25°C	1.5	1.8	V
		I _F = 4A, T _J = 175°C	1.9	2.2	V
Reverse Current	I _R	V _R = 600V, T _J = 25°C	< 1	30	μA
		V _R = 600V, T _J = 175°C	4	160	μA
Total Capacitive Charge	Q _C	I _F = 4A, dI/dt=300A/μs, V _R =400V, T _J =25°C	10.5		nC
Total Capacitance	C	V _R =1V, T _J =25°C, f =1 MHz	163		pF
		V _R =200V, T _J =25°C, f =1 MHz	25		
		V _R =400V, T _J =25°C, f =1 MHz	25		

Device Performances

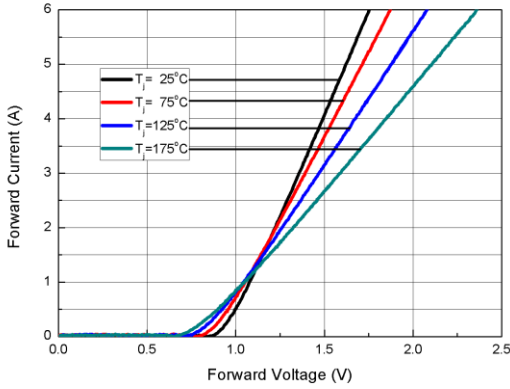


Fig. 1 Forward Characteristics

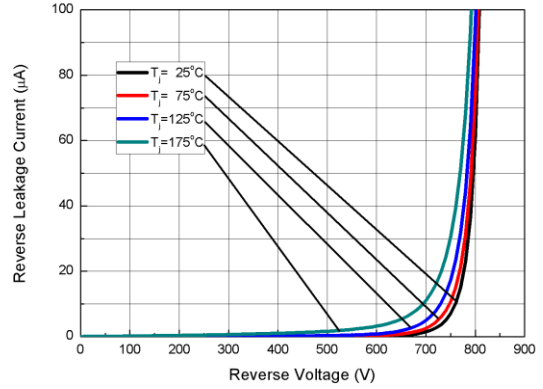


Fig. 2 Reverse Characteristics

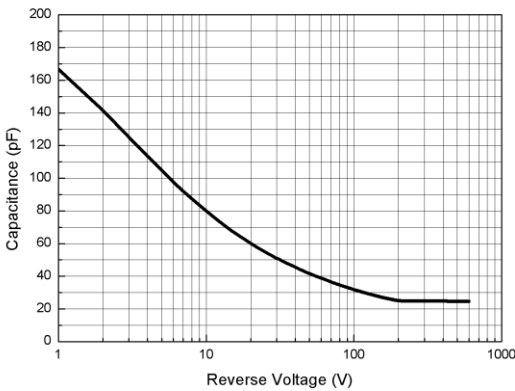


Fig. 3 Capacitance vs. Reverse Voltage

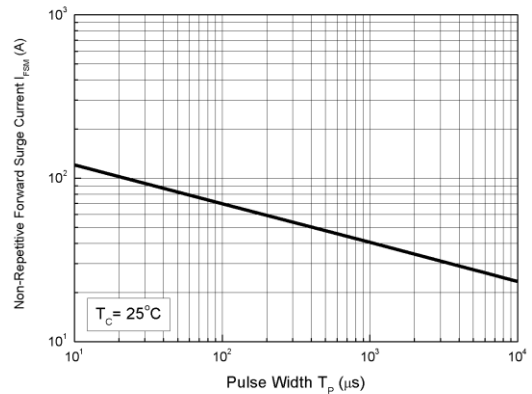


Fig. 4 Non-Repetitive Peak Forward Surge Current (Pulse Mode)

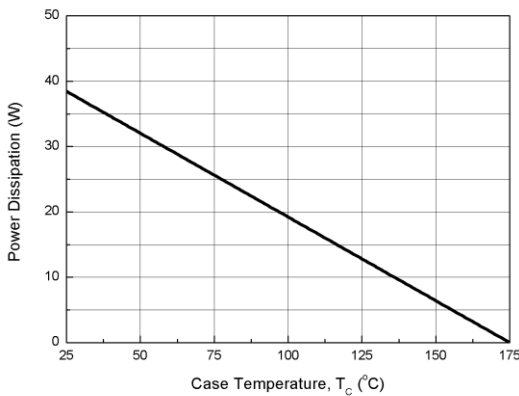


Fig. 5 Power Derating

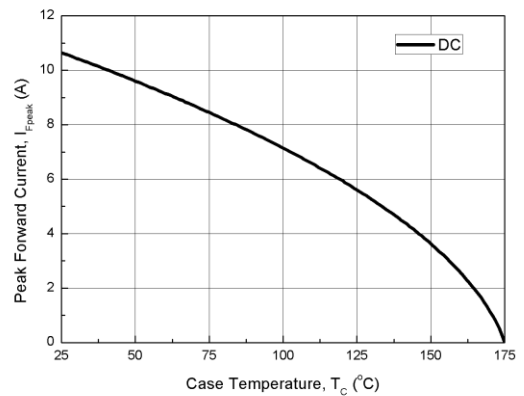
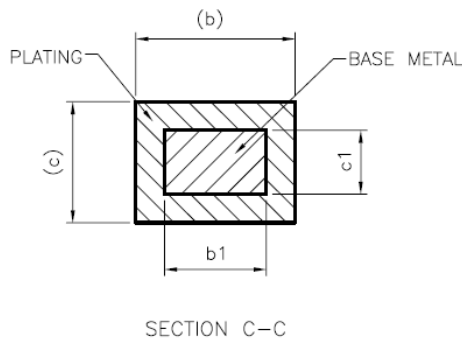
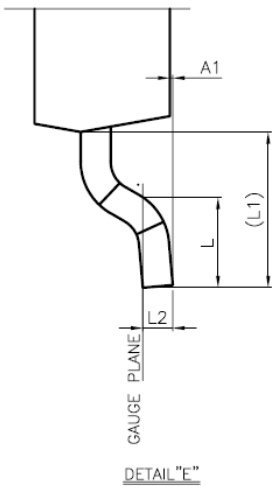
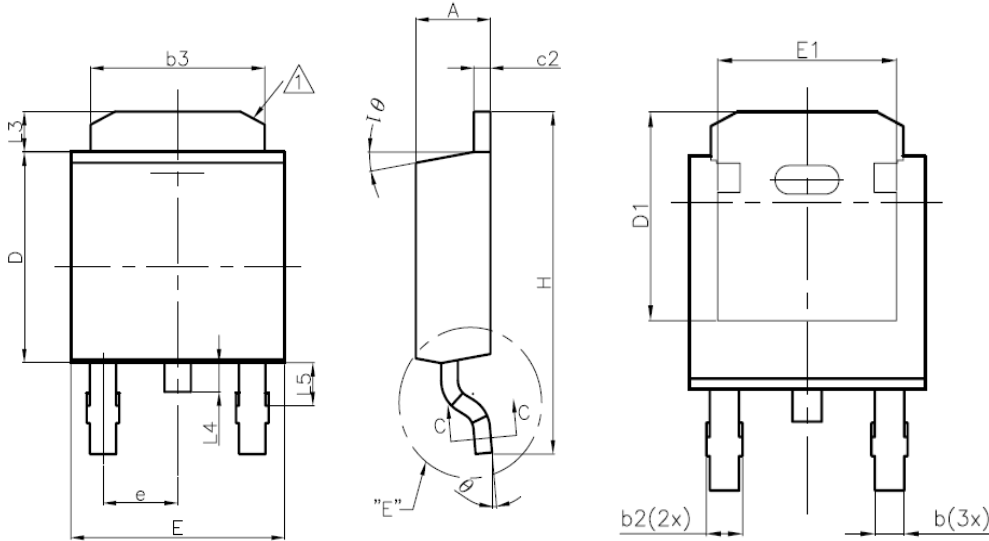


Fig. 6 Current Derating

Package Dimensions TO-252-2L



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	2.19	2.285	2.38	0.086	0.090	0.094
A1	0.00	—	0.127	0.000	—	0.005
b	0.64	—	0.88	0.025	—	0.035
b1	0.71	0.81	0.91	0.028	0.032	0.036
b2	0.71	—	1.14	0.028	—	0.045
b3	5.21	—	5.46	0.205	—	0.215
c	0.46	—	0.58	0.018	—	0.023
c1	0.41	0.508	0.56	0.016	0.020	0.022
c2	0.46	—	0.58	0.018	—	0.023
D	5.97	6.10	6.22	0.235	0.240	0.245
D1	5.21	—	—	0.205	—	—
E	6.35	6.54	6.73	0.250	0.257	0.265
E1	4.32	—	—	0.170	—	—
e	—	2.29 BSC	—	—	0.090 BSC	—
H	9.40	9.91	10.42	0.370	0.390	0.410
L	1.39	1.52	1.65	0.055	0.060	0.065
L1	—	2.63 REF	—	—	0.104 REF	—
L2	—	0.508 BSC	—	—	0.020 BSC	—
L3	0.89	1.17	1.27	0.035	0.046	0.050
L4	0.64	0.83	1.02	0.025	0.033	0.040
L5	1.15	1.24	1.52	0.045	0.049	0.060
θ	0°	—	10°	0°	—	10°
$\theta 1$	0°	—	15°	0°	—	15°

NOTES:
 1.Tolerance : $\pm 0.100\text{mm}$.
 2.Reference document : Jecdec TO-252 E