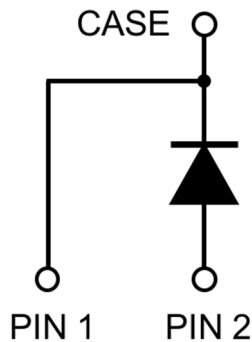


### Package TO-252-2L



### Inner Circuit



### Product Summary

$V_R$	<b>650 V</b>	
$I_F$	<b>7.5A</b> ( $T_c=135^\circ\text{C}$ )	<b>6A</b> ( $T_c=146^\circ\text{C}$ )
$Q_C$	<b>13 nC</b>	



### 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	$V_{RRM}$	$T_J = 25^\circ\text{C}$	650	V
Peak Reverse Surge Voltage	$V_{RSM}$	$T_J = 25^\circ\text{C}$	650	V
DC Blocking Voltage	$V_R$	$T_J = 25^\circ\text{C}$	650	V
Continuous Forward Current	$I_F$	$T_C = 25^\circ\text{C}$	16	A
		$T_C = 135^\circ\text{C}$	7.5	A
		$T_C = 146^\circ\text{C}$	6	A

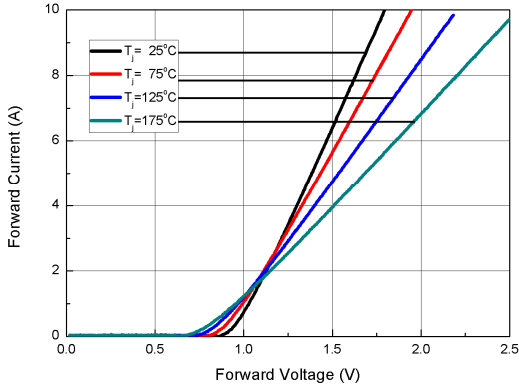
### Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Unit
Non-Repetitive Peak Forward Surge Current	I <sub>FSM</sub>	T <sub>C</sub> = 25°C, T <sub>P</sub> = 10 ms Half Sine Wave	49	A
		T <sub>C</sub> = 125°C, T <sub>P</sub> = 10 ms Half Sine Wave	45	A
		T <sub>C</sub> = 25°C, T <sub>P</sub> = 10 μs Pulse	206	A
Repetitive Peak Forward Surge Current	I <sub>FRM</sub>	T <sub>C</sub> = 25°C, T <sub>P</sub> = 10 ms Half Sine Wave, D = 0.1	27	A
		T <sub>C</sub> = 125°C, T <sub>P</sub> = 10 ms Half Sine Wave, D = 0.1	21	A
Power Dissipation	P <sub>D</sub>	T <sub>C</sub> = 25°C	57	W
		T <sub>C</sub> = 125°C	19	W
Operating Junction and Storage Temperature	T <sub>J</sub>		175	°C
	T <sub>stg</sub>		-55 to 175	°C
Thermal Resistance Junction to Case	R <sub>θJC</sub>		2.6	°C/W

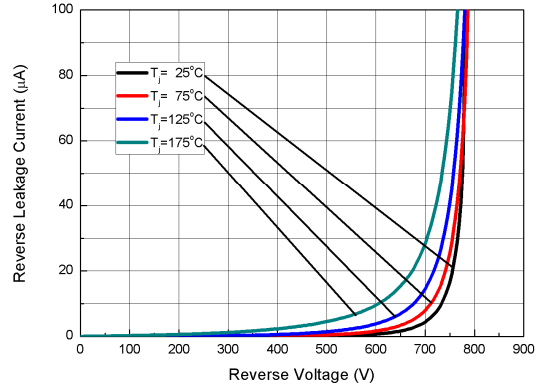
### Electrical Characteristics

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit
DC Blocking Voltage	V <sub>DC</sub>	I <sub>R</sub> = 100 μA, T <sub>J</sub> = 25°C	> 650		V
Forward Voltage	V <sub>F</sub>	I <sub>F</sub> = 6A, T <sub>J</sub> = 25°C	1.5	1.8	V
		I <sub>F</sub> = 6A, T <sub>J</sub> = 175°C	1.9	2.2	V
Reverse Current	I <sub>R</sub>	V <sub>R</sub> = 600V, T <sub>J</sub> = 25°C	< 1	30	μA
		V <sub>R</sub> = 600V, T <sub>J</sub> = 175°C	10	160	μA
Total Capacitive Charge	Q <sub>C</sub>	I <sub>F</sub> = 6A, dI/dt=300A/μs, V <sub>R</sub> =400V, T <sub>J</sub> =25°C	13		nC
Total Capacitance	C	V <sub>R</sub> =1V, T <sub>J</sub> =25°C, f =1 MHz	244		pF
		V <sub>R</sub> =200V, T <sub>J</sub> =25°C, f =1 MHz	37		
		V <sub>R</sub> =400V, T <sub>J</sub> =25°C, f =1 MHz	36		

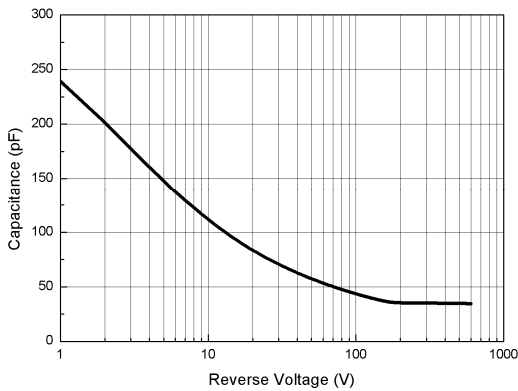
### Device Performances



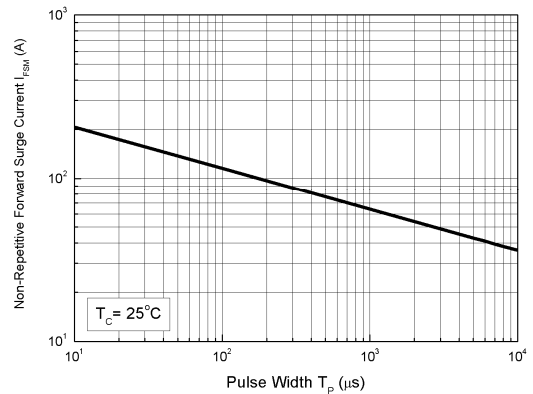
**Fig. 1 Forward Characteristics**



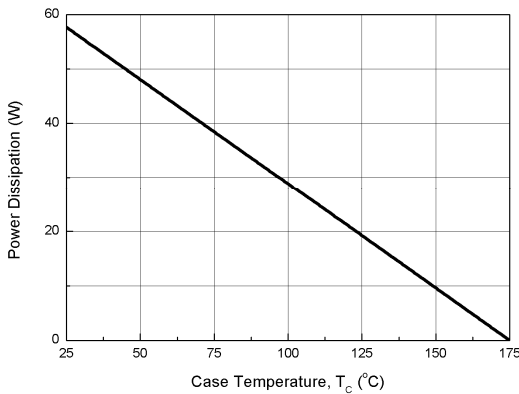
**Fig. 2 Reverse Characteristics**



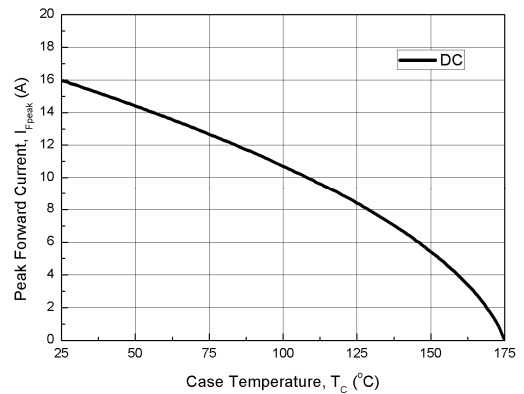
**Fig. 3 Capacitance vs. Reverse Voltage**



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

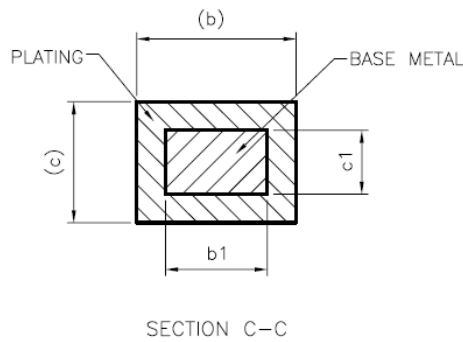
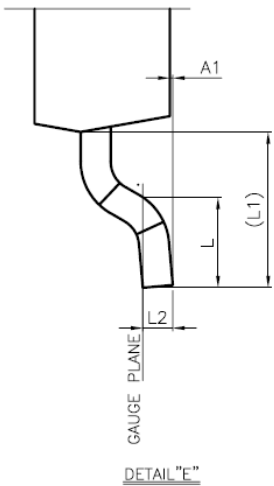
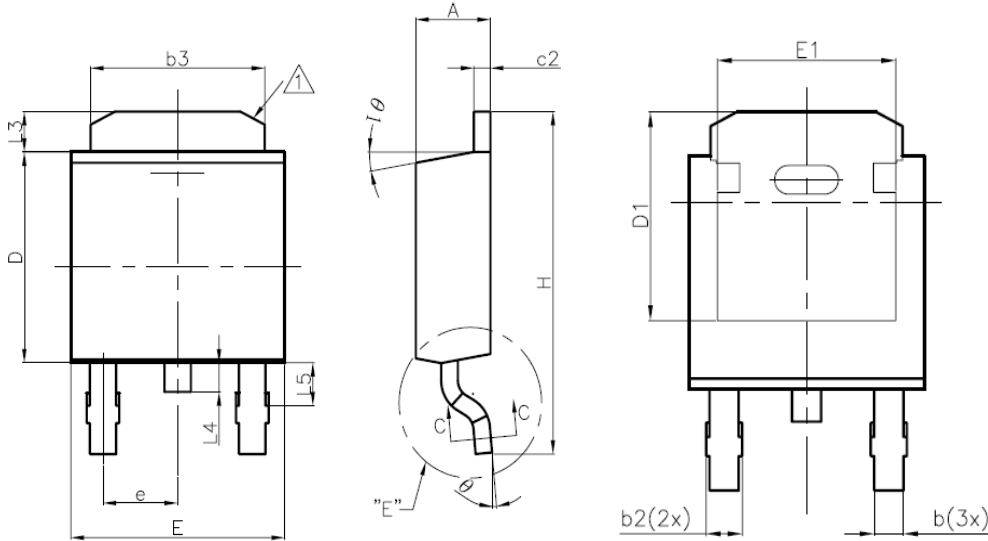


**Fig. 5 Power Derating**



**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
$\theta$	0°	—	10°	0°	—	10°
$\theta 1$	0°	—	15°	0°	—	15°

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