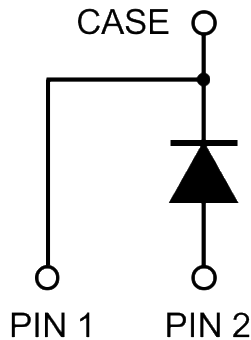


Package TO-220-2L



Inner Circuit



Product Summary

V_R	1200 V	
I_F	15A ($T_c=135^\circ\text{C}$)	8A ($T_c=160^\circ\text{C}$)
Q_C	32 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
- ◆ UPS

Maximum Ratings

Parameter	Symbol	Test Conditions	Value	Unit
Peak Repetitive Reverse Voltage	V_{RRM}	$T_J = 25^\circ\text{C}$	1200	V
Peak Reverse Surge Voltage	V_{RSM}	$T_J = 25^\circ\text{C}$	1200	V
DC Blocking Voltage	V_R	$T_J = 25^\circ\text{C}$	1200	V
Continuous Forward Current	I_F	$T_C = 25^\circ\text{C}$	31	A
		$T_C = 135^\circ\text{C}$	15	A
		$T_C = 160^\circ\text{C}$	8	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	108	A
		T _C = 125°C, T _P = 10 ms Half Sine Wave	94	A
		T _C = 25°C, T _P = 10 μs Pulse	612	A
Repetitive Peak Forward Surge Current	I _{FRM}	T _C = 25°C, T _P = 10 ms Half Sine Wave, D = 0.1	80	A
		T _C = 125°C, T _P = 10 ms Half Sine Wave, D = 0.1	66	A
Power Dissipation	P _D	T _C = 25°C	167	W
		T _C = 125°C	56	W
Operating Junction and Storage Temperature	T _J		175	°C
	T _{stg}		-55 to 175	°C
Thermal Resistance Junction to Case	R _{θJC}		0.9	°C/W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit
DC Blocking Voltage	V _{DC}	I _R = 100 μA, T _J = 25°C	> 1200		V
Forward Voltage	V _F	I _F = 8A, T _J = 25°C	1.4	1.8	V
		I _F = 8A, T _J = 175°C	1.9	2.4	V
Reverse Current	I _R	V _R = 1200V, T _J = 25°C	< 1	100	μA
		V _R = 1200V, T _J = 175°C	10	500	μA
Total Capacitive Charge	Q _C	I _F = 8A, dI/dt=300A/μs, V _R =400V, T _J =25°C	32		nC
Total Capacitance	C	V _R =1V, T _J =25°C, f=1 MHz	537		pF
		V _R =400V, T _J =25°C, f=1 MHz	52		
		V _R =800V, T _J =25°C, f=1 MHz	47		

Device Performances

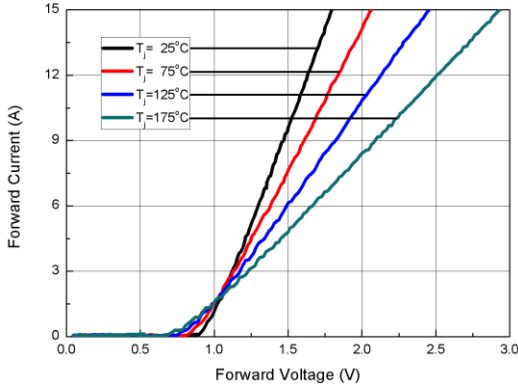


Fig. 1 Forward Characteristics

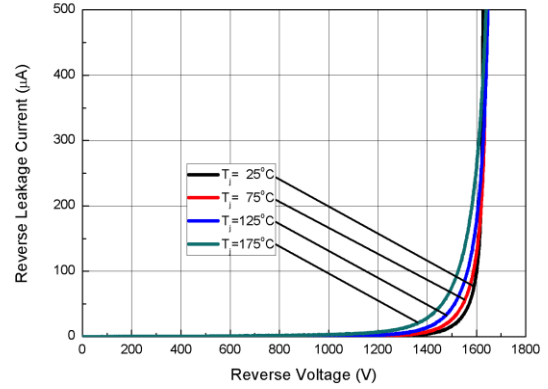


Fig. 2 Reverse Characteristics

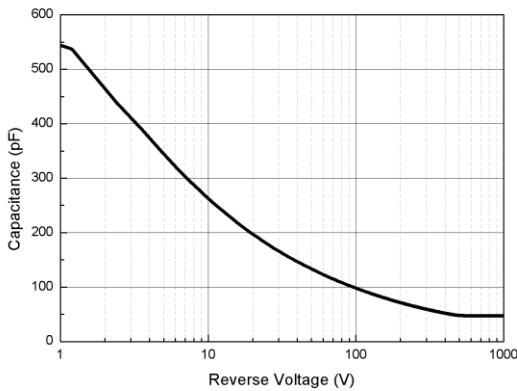


Fig. 3 Capacitance vs. Reverse Voltage

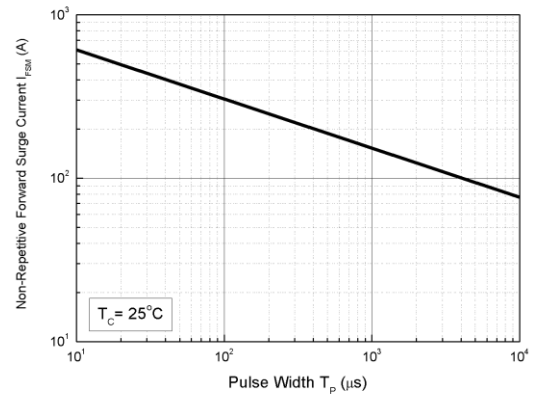


Fig. 4 Non-Repetitive Peak Forward Surge Current (Pulse Mode)

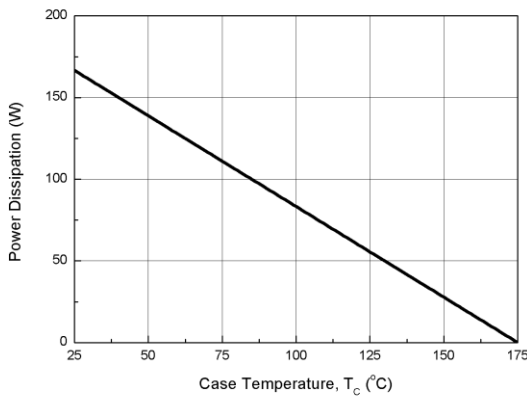


Fig. 5 Power Derating

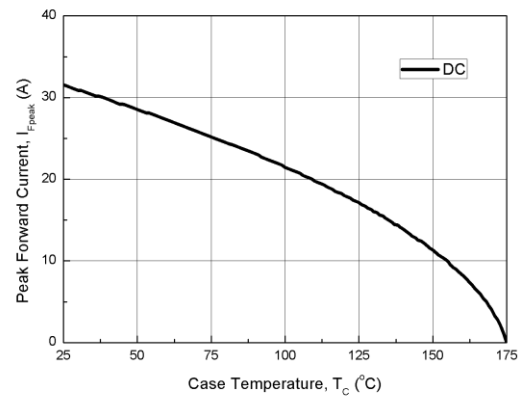
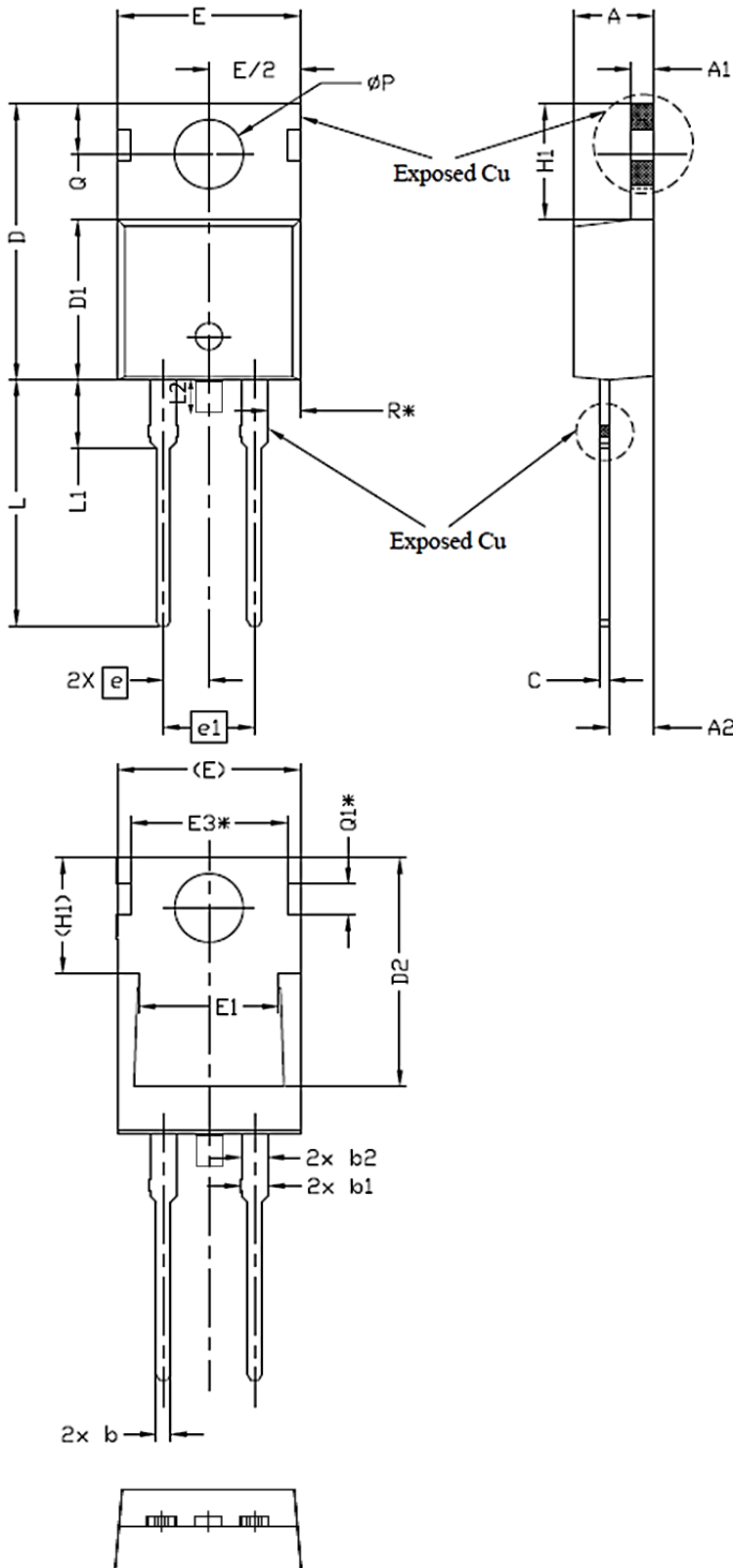


Fig. 6 Current Derating

Package Dimensions TO-220-2L



SYMBOL	DIMENSIONS			NOTES
	MIN.	NOM.	MAX.	
A	4.24	4.44	4.67	
A1	1.15	1.27	1.40	
A2	2.30	2.48	2.82	
b	0.70	0.81	0.91	
b1	1.20	1.55	1.75	
b2	1.17	1.36	1.70	
c	0.279	0.441	0.600	
D	14.70	15.28	16.00	4
D1	8.76	8.91	9.02	
D2	11.91	12.73	12.83	5
E	9.96	10.16	10.36	4,5
E1	6.0		9.0	5
E3*	8.70REF.			
e	2.54BSC			
e1	5.08BSC			
H1	6.17	6.37	6.60	5,6
L	13.47	13.72	14.10	
L1	3.60	3.95	4.23	
L2			1.6	Trimmed
			0	Real 2 pins
ØP	3.75	3.84	3.93	
Q	2.60	2.77	3.00	
Q1*	1.73REF.			
R*	1.82REF.			

Note:

1. Package Reference: JEDEC TO220, Variation AB.
2. All Dimensions Are In mm.
3. Slot Required, Notch May Be Rounded
4. Dimension D & E Do Not Include Mold Flash. Mold Flash Shall Not Exceed 0.127mm Pre Side. These Dimensions Are Measured At The Outermost Extreme Of The Plastic Body.
5. Thermal Pad Contour Optional Within Dimensions E, H1, D2 & E1.
6. Dimension E2 & H1 Define A Zone Where Stamping And Singulation Irregularities Are Allowed.
7. "*" is reference .