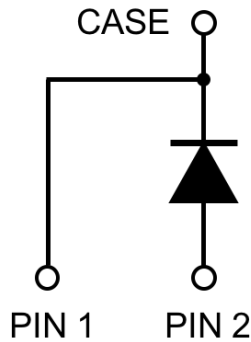


Package TO-220-2L



Inner Circuit



Product Summary

V_R	1200 V	
I_F	26A ($T_c=110^\circ\text{C}$)	20A ($T_c=133^\circ\text{C}$)
Q_C	48nC	



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	$T_C = 25^\circ\text{C}$	41	A
		$T_C = 110^\circ\text{C}$	26	A
		$T_C = 133^\circ\text{C}$	20	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	173	A
		T _C = 125°C, T _P = 10 ms Half Sine Wave	153	A
		T _C = 25°C, T _P = 10 μs Pulse	870	A
Repetitive Peak Forward Surge Current	I _{FRM}	T _C = 25°C, T _P = 10 ms Half Sine Wave, D = 0.1	98	A
		T _C = 125°C, T _P = 10 ms Half Sine Wave, D = 0.1	74	A
Power Dissipation	P _D	T _C = 25°C	200	W
		T _C = 125°C	67	W
Operating Junction and Storage Temperature	T _J		175	°C
	T _{stg}		-55 to 175	°C
Thermal Resistance Junction to Case	R _{θJC}		0.75	°C/W

Electrical Characteristics

Parameter	Symbol	Test Conditions	Typ.	Max.	Unit
DC Blocking Voltage	V _{DC}	I _R = 500 μA, T _J = 25°C	> 1200		V
Forward Voltage	V _F	I _F = 20A, T _J = 25°C	1.5	1.8	V
		I _F = 20A, T _J = 175°C	2.3	2.6	V
Reverse Current	I _R	V _R = 1200V, T _J = 25°C	2	100	μA
		V _R = 1200V, T _J = 175°C	40	1000	μA
Total Capacitive Charge	Q _C	I _F = 20A, dI/dt=300A/μs, V _R =400V, T _J =25°C	48		nC
Total Capacitance	C	V _R =1V, T _J =25°C, f =1 MHz	1030		pF
		V _R =400V, T _J =25°C, f =1 MHz	94		
		V _R =800V, T _J =25°C, f =1 MHz	77		

Device Performances

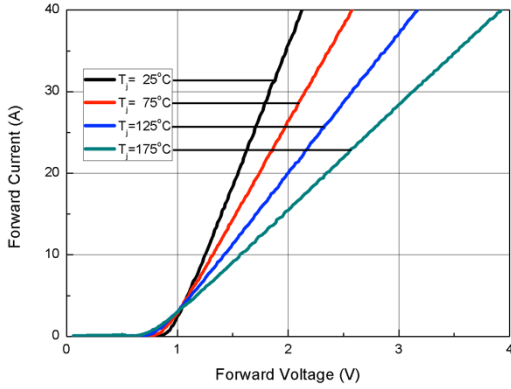


Fig. 1 Forward Characteristics

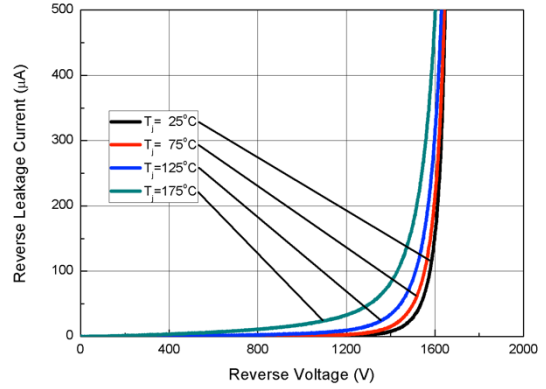


Fig. 2 Reverse Characteristics

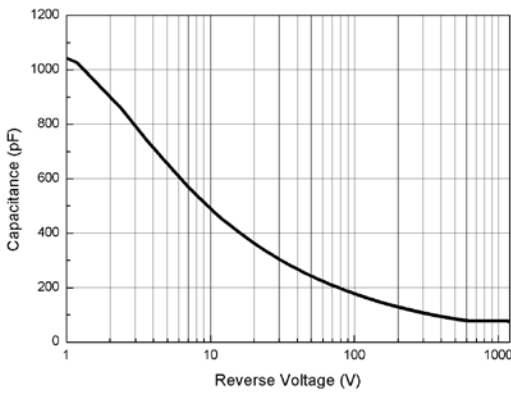


Fig. 3 Capacitance vs. Reverse Voltage

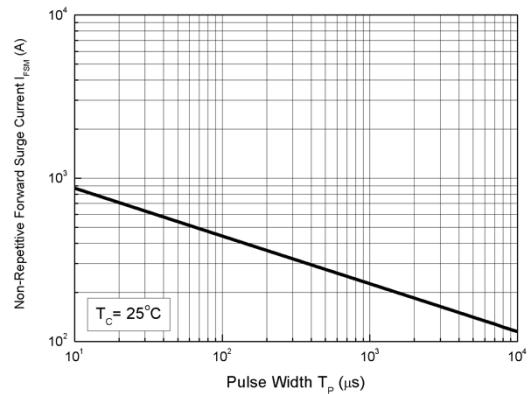


Fig. 4 Non-Repetitive Peak Forward Surge Current (Pulse Mode)

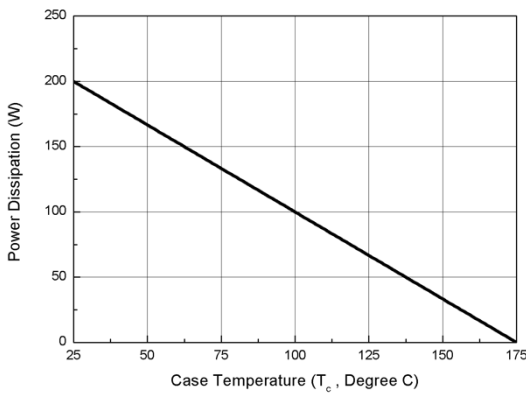


Fig. 5 Power Derating

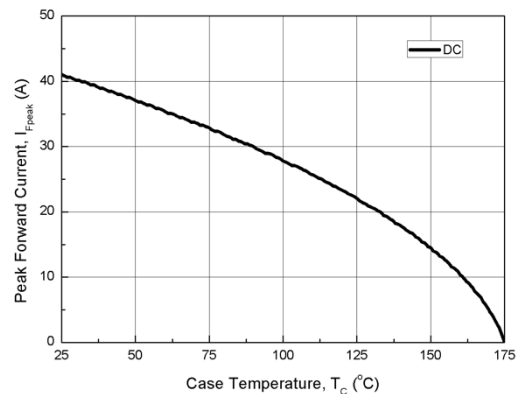
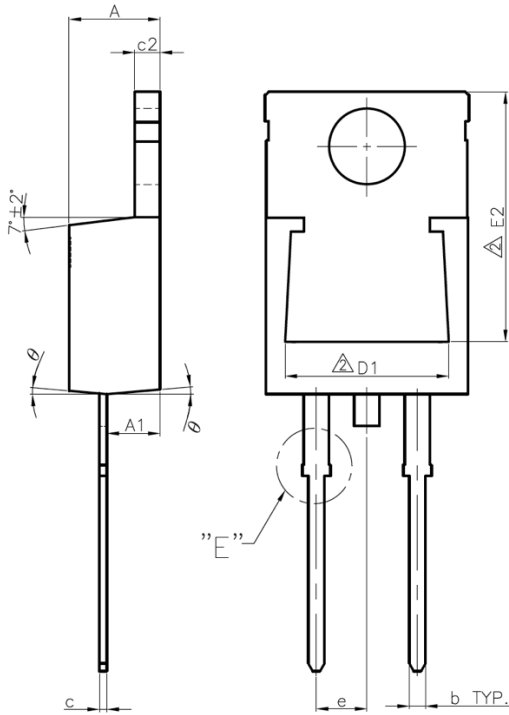
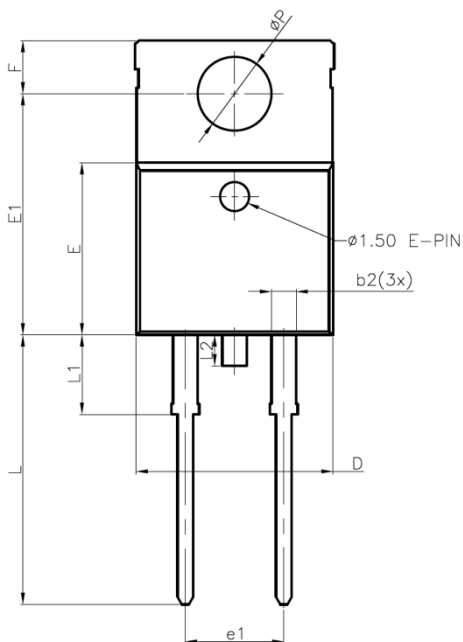


Fig. 6 Current Derating

Package Dimensions TO-220-2L



SYMBOLS	DIMENSIONS IN MILLIMETERS			DIMENSIONS IN INCHES		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A	4.470	---	4.670	0.176	---	0.184
A1	2.520	---	2.820	0.099	---	0.111
b	0.711	0.813	0.910	0.028	0.032	0.036
b1	0.711	---	0.914	0.028	---	0.036
b2	1.170	1.270	1.370	0.046	0.050	0.054
b3	1.168	---	1.372	0.046	---	0.054
c	0.279	0.381	0.483	0.011	0.015	0.019
c1	0.279	---	0.432	0.011	---	0.017
c2	1.168	1.270	1.370	0.046	0.050	0.054
D	10.010	---	10.310	0.394	---	0.406
D1	7.595	---	8.230	0.299	---	0.324
E	8.763	8.890	9.017	0.345	0.350	0.355
E1	12.294	12.446	12.586	0.484	0.490	0.496
E2	11.913	---	12.548	0.469	---	0.494
e	---	2.540	---	---	0.100	---
e1	4.980	---	5.180	0.196	---	0.204
F	2.642	2.743	2.946	0.104	0.108	0.116
G	0.000	---	0.152	0.000	---	0.006
L	13.700	---	14.100	0.539	---	0.555
L1	3.980	4.107	4.230	0.157	0.162	0.167
L2	---	---	1.600	---	---	0.063
φP	3.770	---	3.890	0.148	---	0.153
θ	1°	---	5°	1°	---	5°



NOTES:
 1. All dimension are in mm[inch].
 2. Tolerance : ±0.004inch.

