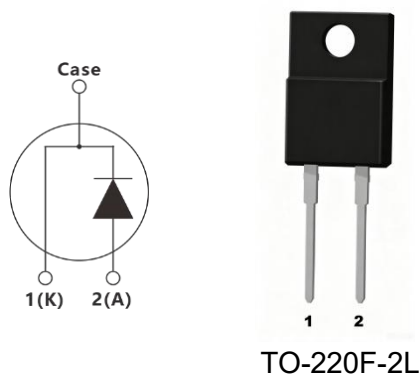


Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	650	V
I_F	10	A
Q_C	33	nC



Features

- Zero reverse recovery current
- Zero forward recovery voltage
- Temperature in dependent switching behavior
- High temperature operation
- High frequency operation

Applications

- Switched-Mode Power Supply
- Power Factor Correction
- Uninterruptible Power Supply
- Boost Converter

Maximum Ratings (at $T_C=25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
Continuous Forward Current $T_C \leq 25^\circ\text{C}$ $T_C \leq 140^\circ\text{C}$	I_F	25 10	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p = 10\text{ms}, \text{Half Sine Pulse}$	I_{FSM}	73	A
Power dissipation $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	P_{tot}	69 30	W
Operating junction Range	T_J	-55 to +175	$^\circ\text{C}$
Storage temperature Range	T_{stg}	-55 to +175	$^\circ\text{C}$

Thermal Characteristics

Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	R_{thJC}	2.18	$^{\circ}C/W$

Electrical Characteristics(at $T_C=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC blocking voltage	V_{DC}	$T_J=25^{\circ}C$, $I_R=100\mu A$	650	--	--	V
Forward voltage	V_F	$I_F=10A$, $T_J=25^{\circ}C$ $I_F=10A$, $T_J=175^{\circ}C$	--	1.4 1.7	1.7 --	V
Reverse current	I_R	$V_R=650V$, $T_J=25^{\circ}C$ $V_R=650V$, $T_J=175^{\circ}C$	--	1 8	50 --	μA
Total Capacitance	C	$V_R=1V$, $f=1MHz$ $V_R=200V$, $f=1MHz$ $V_R=400V$, $f=1MHz$	--	427 63 47	--	pF
Total Capacitive Charge	Q_C	$V_R=400V$	--	33	--	nC
Capacitance stored energy	E_C	$V_R=400V$	--	4.9	--	μJ

Typical Characteristics

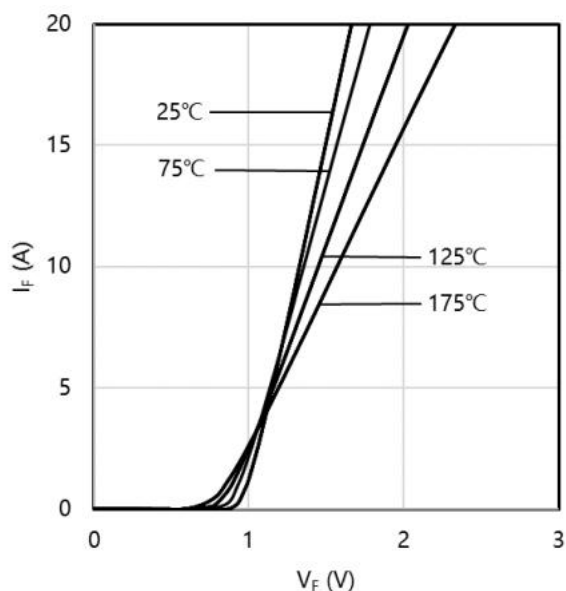


Fig.1 Forward Characteristics

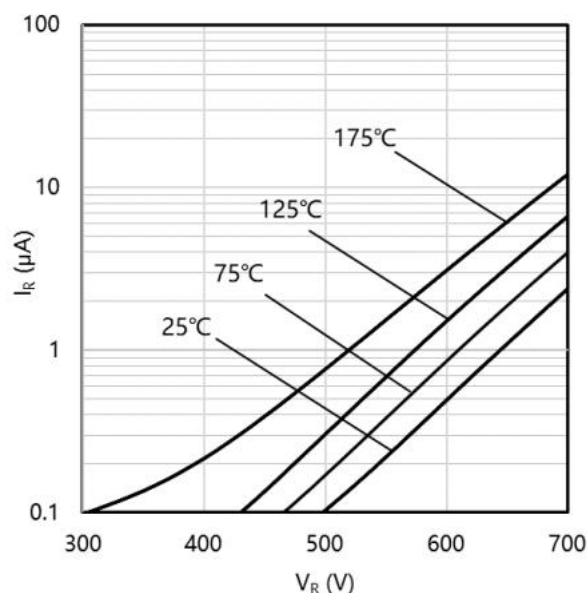


Fig.2 Reverse Characteristics

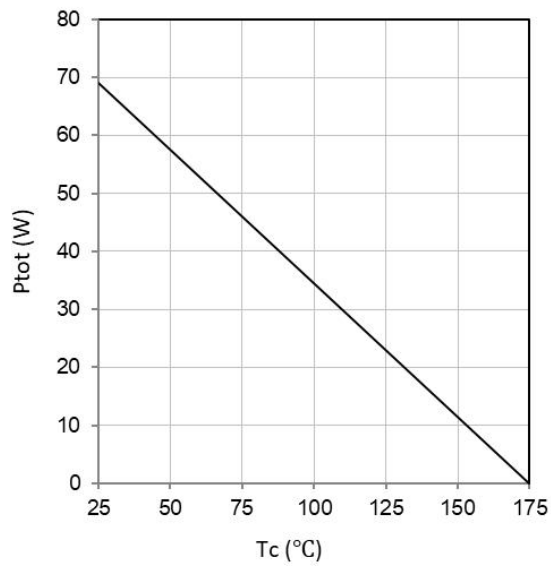


Fig.3 Power Derating

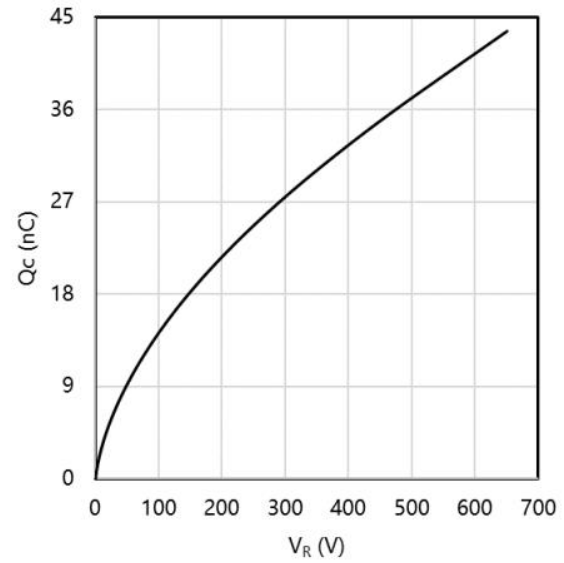


Fig.4 Total Capacitive Charge vs. Reverse Voltage

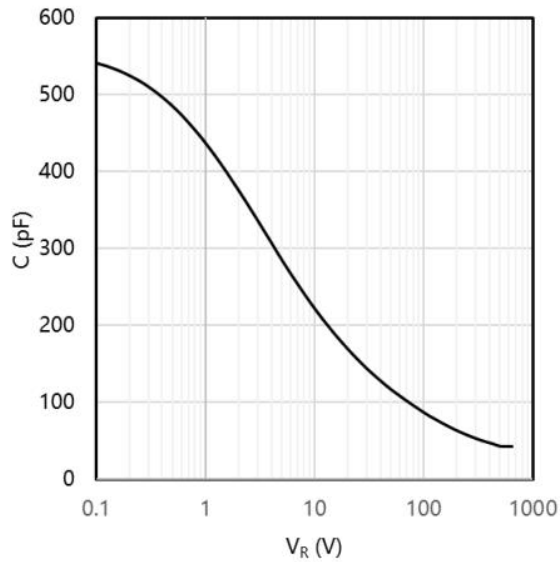


Fig.5 Total Capacitance vs. Reverse Voltage

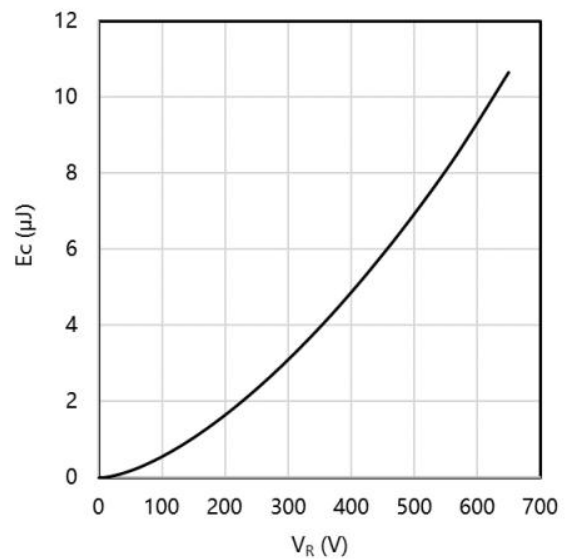


Fig.6 Capacitance Stored Energy

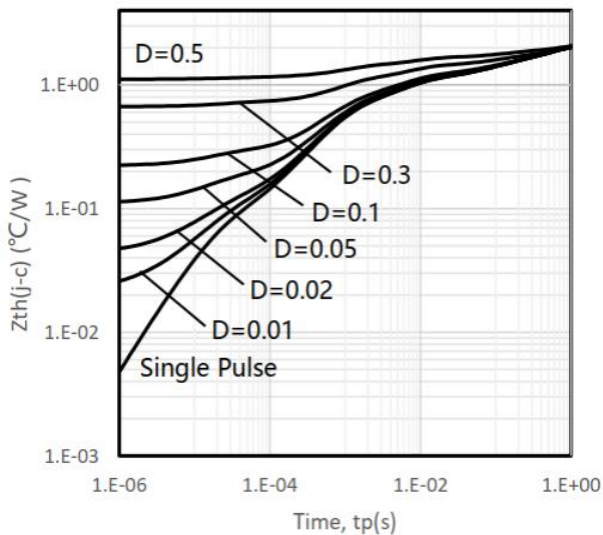
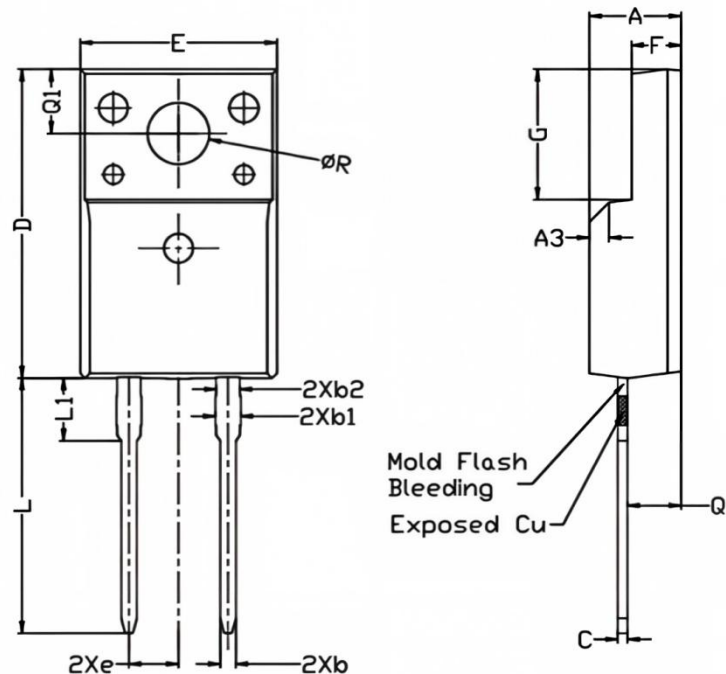


Fig.7 Transient Thermal Impedance

Package Outline(Unit:mm)

TO-220F-2L



Symbol	Dimensions In Millimeters		
	Min.	Non.	Max.
A	4.60	4.70	4.80
b	0.70	0.80	0.91
b1	1.20	1.30	1.47
b2	1.10	1.20	1.30
C	0.45	0.50	0.63
D	15.80	15.87	15.97
e	2.54		
E	10.00	10.10	10.30
F	2.44	2.54	2.64
G	6.50	6.70	6.90
L	12.90	13.10	13.30
L1	3.13	3.23	3.33
Q	2.65	2.75	2.85
Q1	3.20	3.30	3.40
ΦR	3.08	3.18	3.28

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