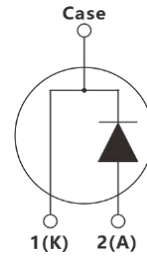


Silicon Carbide Schottky Diode

Parameter	Value	Unit
V_{RRM}	650	V
I_F	10	A
Q_C	32	nC



TO-220F-2L

Features

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

Applications

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

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

Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage	V_{RRM}	650	V
Surge Peak Reverse Voltage	V_{RSM}	650	V
Maximum DC Blocking Voltage	V_{DC}	650	V
Continuous Forward Current $T_C = 25^\circ\text{C}$ $T_C = 135^\circ\text{C}$ $T_C = 53.5^\circ\text{C}$	I_F	32.5 14.8 10	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p = 8.3\text{ms}, \text{Half Sine Pulse}$	I_{FSM}	100	A
Power dissipation $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	P_{tot}	50 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}	2.30	$^{\circ}C/W$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Instantaneous forward voltage per leg	V_F	$I_F=10A, T_J=25^{\circ}C$ $I_F=10A, T_J=175^{\circ}C$		1.25 1.66	1.5 2.0	V
Reverse current per leg	I_R	$V_R=650V, T_J=25^{\circ}C$ $V_R=650V, T_J=175^{\circ}C$		0.35 2.4	50 100	μA
Total Capacitance	C	$V_R=0V, T_J=25^{\circ}C, f=1MHz$		617		pF
Total Capacitive Charge	Q_C	$V_R=400V, I_F=10A$ $di/dt = 200A/\mu s, T_J=25^{\circ}C$		32		nC

Typical Characteristics

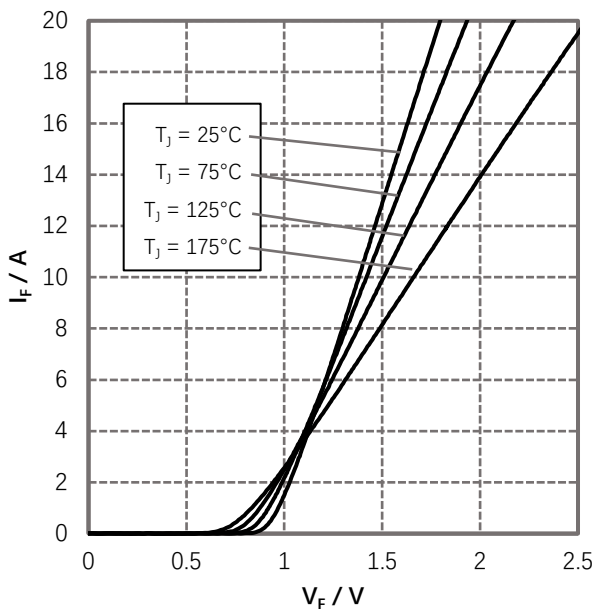


Fig 1. Typical forward characteristics

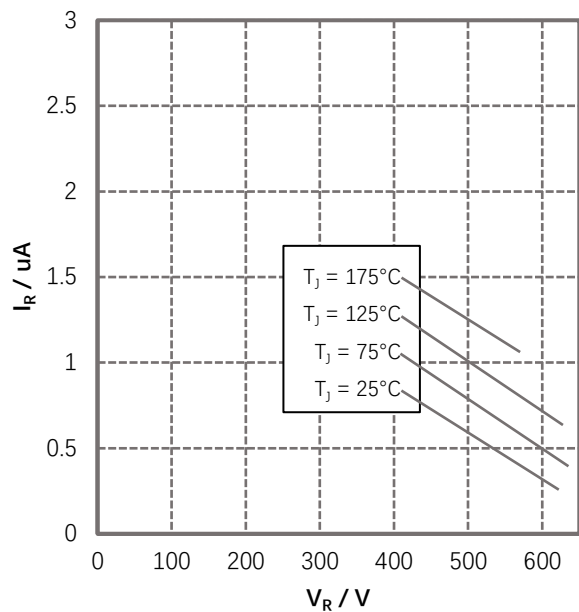


Fig 2. Typical reverse current as function of reverse voltage

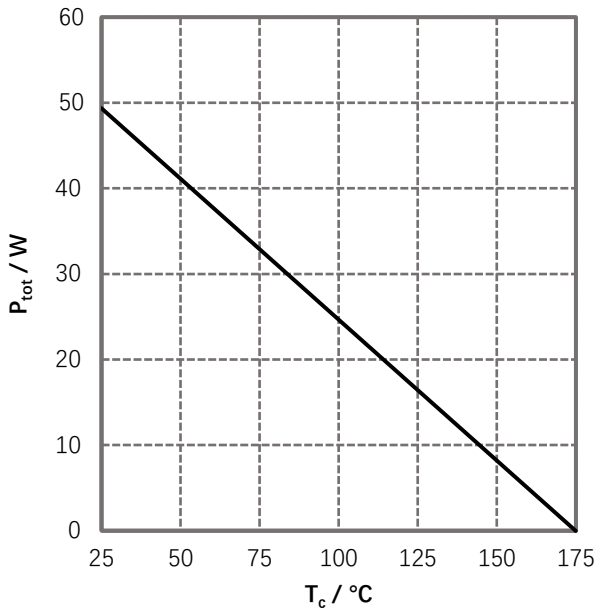


Fig 3. Power Derating

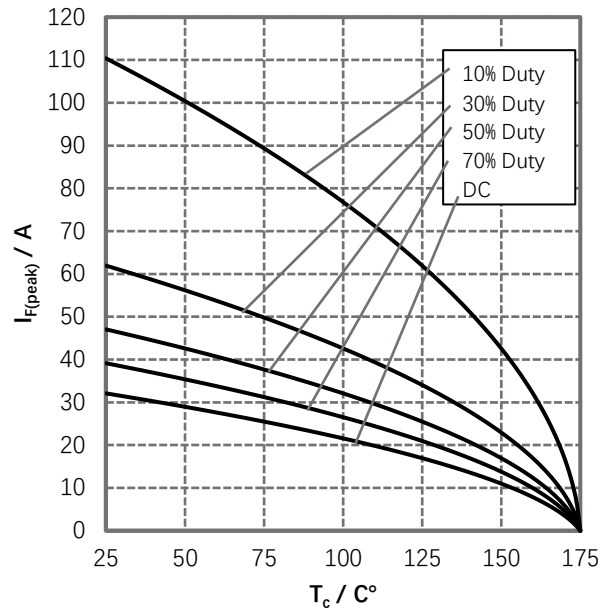


Fig 4. Current Derating

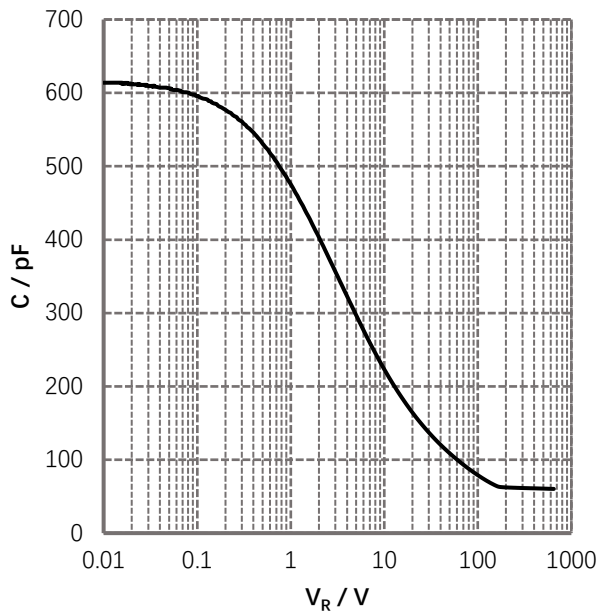


Fig 5. Typical capacitance as function of reverse voltage, $C=f(V_R)$; $T_j=25^\circ\text{C}$; $f=1\text{ MHz}$

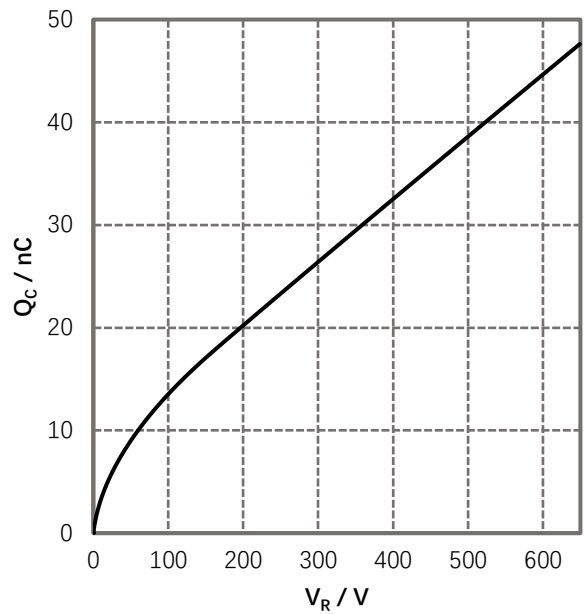


Fig 6. Typical reverse charge as function of reverse voltage

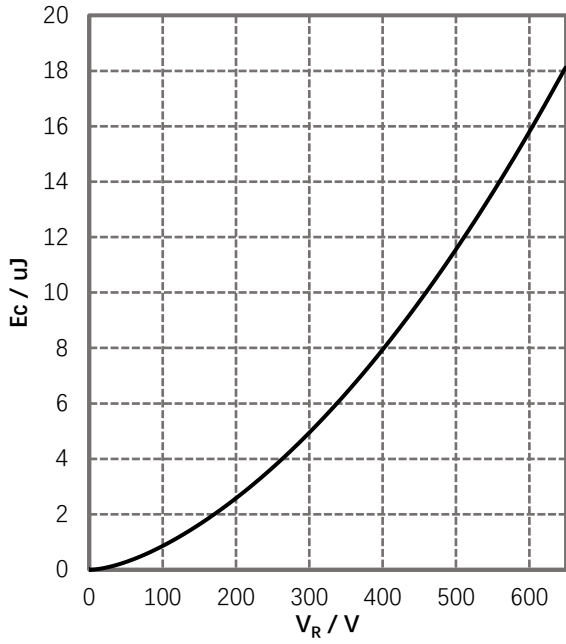


Fig 7. Capacitance Stored Energy

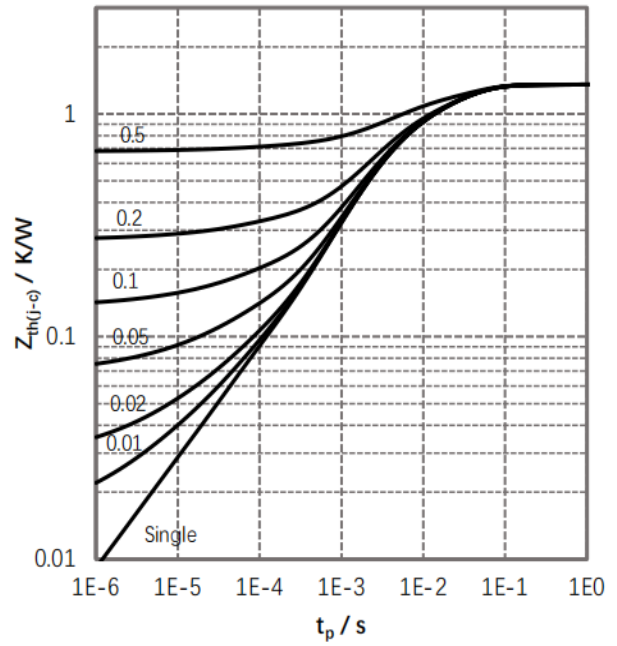
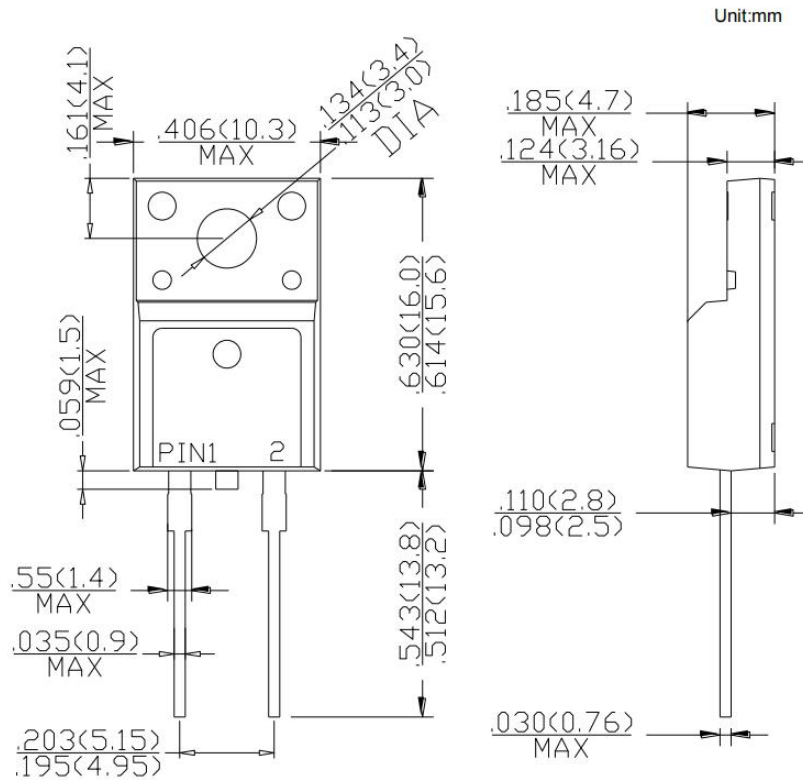


Fig 8. Transient Thermal Impedance

Package Outlines(Unit:mm)

TO-220F-2L



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