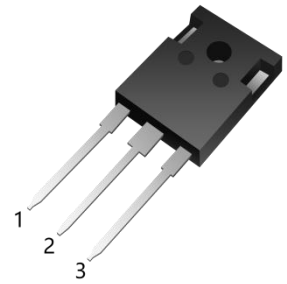
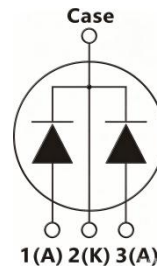


## Silicon Carbide Schottky Diode

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



TO-247-3L

### 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
Continuous Forward Current $T_C=25^\circ\text{C}$ $T_C=135^\circ\text{C}$ $T_C=158^\circ\text{C}$	$I_F$	35.6* 16.9* 10*	A
Repetitive Peak Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}, D=0.1, 1000\text{Cycle}$	$I_{FRM}$	60*	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$I_{FSM}$	120*	A
Non-Repetitive Forward Surge Current $T_C = 25^\circ\text{C}, t_p=10\text{ms}, \text{Half Sine Pulse}$	$\int i^2 dt$	72*	$\text{A}^2\text{s}$
Power dissipation $T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	$P_{tot}$	147* 64*	W
Operating junction Range	$T_j$	-55 to +175	$^\circ\text{C}$
Storage temperature Range	$T_{stg}$	-55 to +175	$^\circ\text{C}$

\* Per leg; \*\*Per device

**Thermal Characteristics**

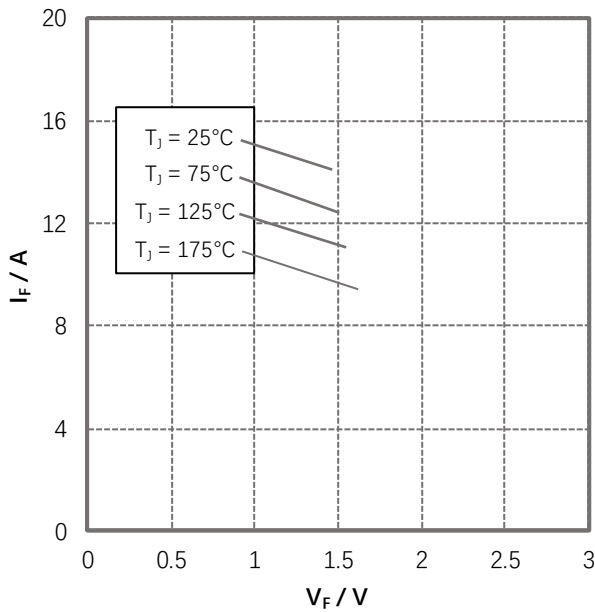
Parameter	Symbol	Typ.	Unit
Thermal resistance, junction – case.	$R_{thJC}$	1.02* 0.51**	°C/W

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

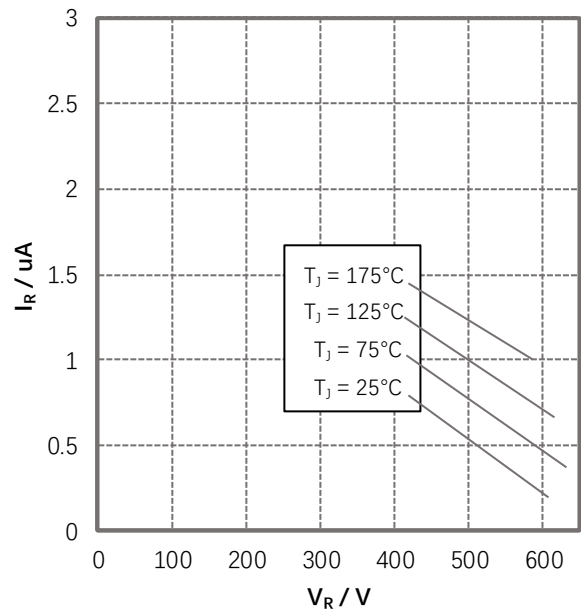
Parameter	Symbol	Test conditions	Value			Unit
			Min.	Typ.	Max.	
DC blocking voltage	$V_{DC}$		650			V
Diode forward voltage	$V_F$	$I_F=10\text{A}, T_j=25^\circ\text{C}$ $I_F=10\text{A}, T_j=175^\circ\text{C}$		1.35 1.64	1.7 1.8	V
Reverse current	$I_R$	$V_R=650\text{V}, T_j=25^\circ\text{C}$ $V_R=650\text{V}, T_j=175^\circ\text{C}$		0.35 2.4	50 100	$\mu\text{A}$
Total capacitive charge	$Q_C$	$V_R=400\text{V}, T_j=25^\circ\text{C}$		32		nC
Total capacitance	C	$T_j=25^\circ\text{C}$ $V_R=0\text{V}, f=1\text{MHz}$ $V_R=200\text{V}, f=1\text{MHz}$ $V_R=400\text{V}, f=1\text{MHz}$		618 62 56		pF
Capacitance Stored Energy	$E_C$	$V_R=400\text{V}$		8		$\mu\text{J}$

\* Per leg \*\*Per device

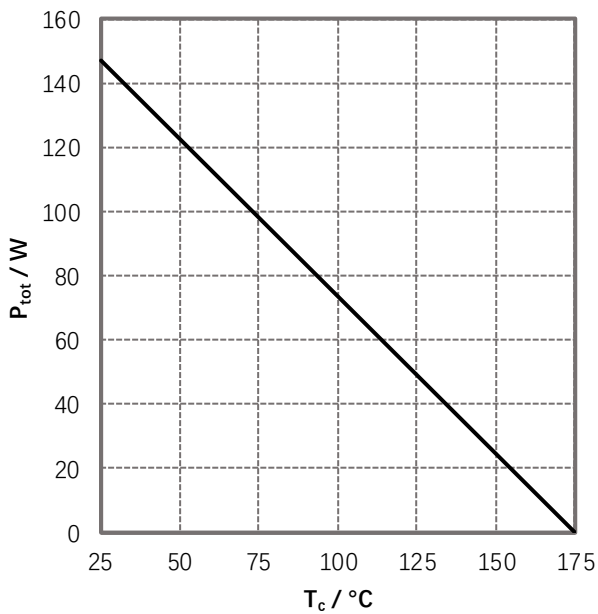
**Typical Characteristics**



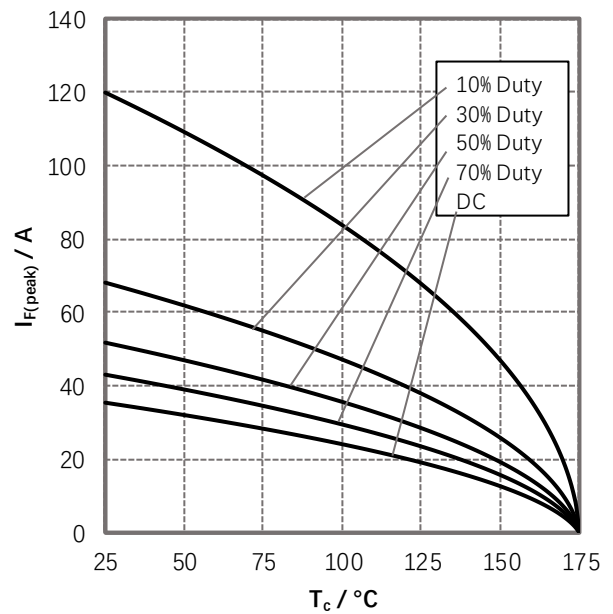
**Figure 1. Forward Characteristics**



**Figure 2. Reverse Characteristics**



**Figure 3. Power Derating**



**Figure 4. Current Derating**  
Valid for switching of above 20kHz,  
excluding D.C. curve

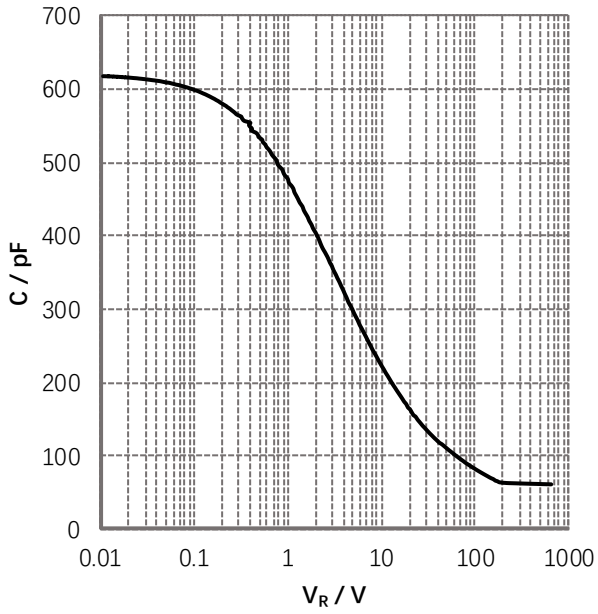


Figure 5. Capacitance vs. Reverse Voltage

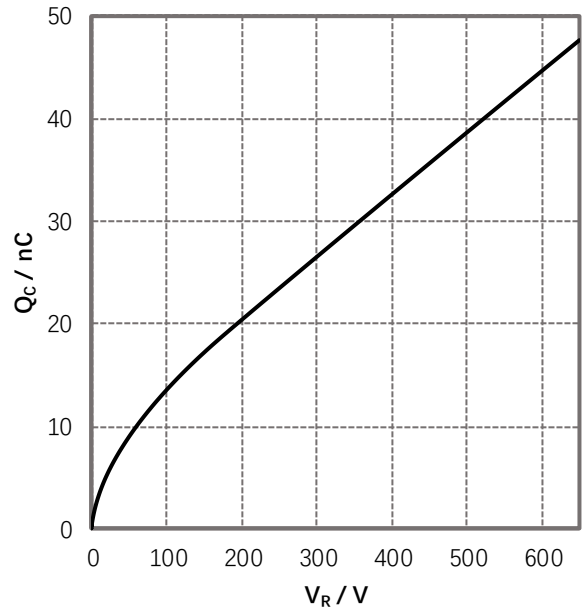


Figure 6. Reverse Charge vs. Reverse Voltage

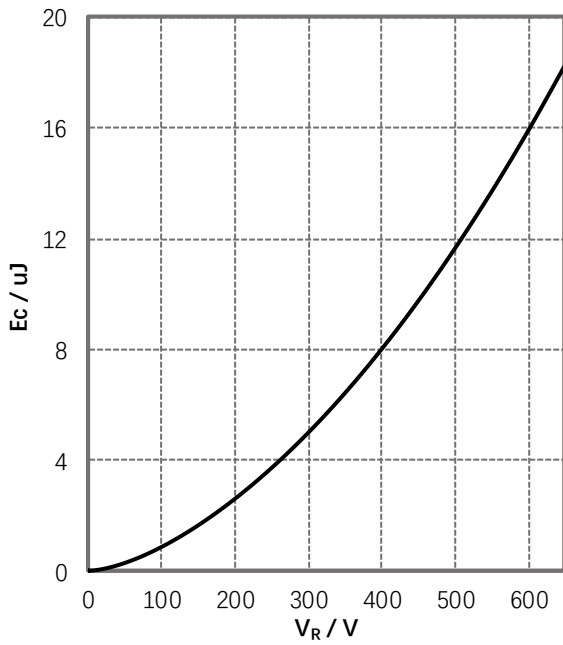


Figure 7. Capacitance Stored Energy

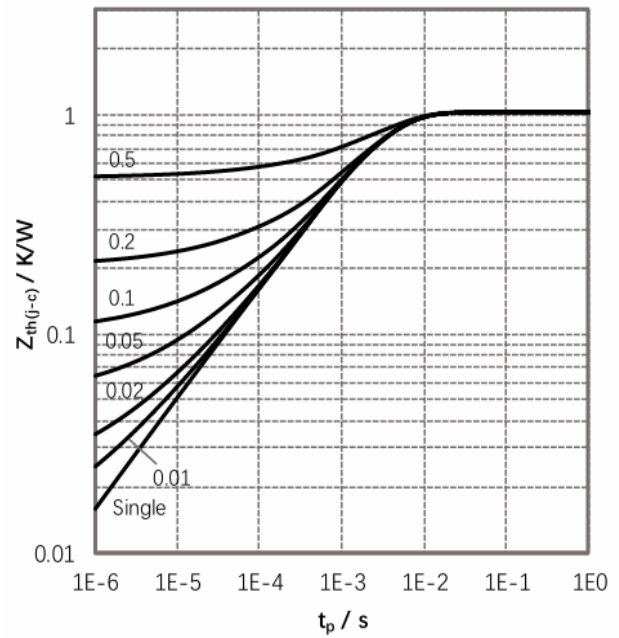
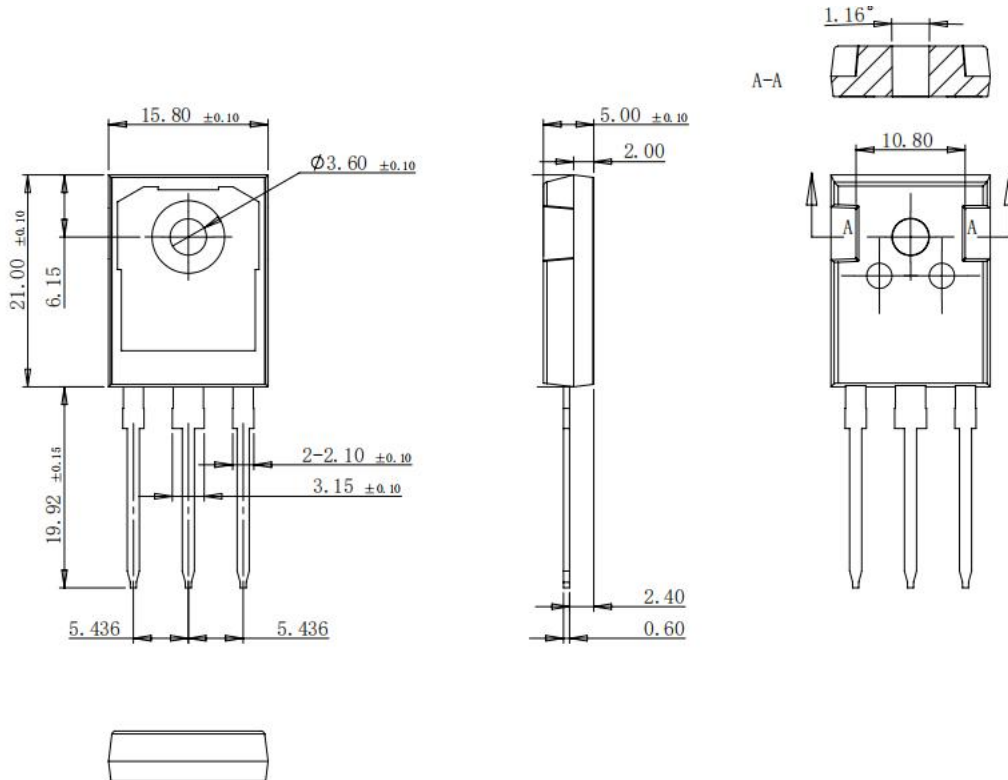


Figure 8. Transient Thermal Impedance

## Package Outlines(Unit:mm)

### TO-247-3L



### \*Important Usage Information and Disclaimer

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