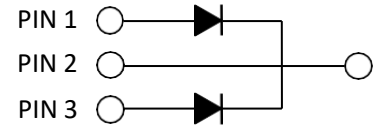


# M3S-0030-065D

## Silicon Carbide Schottky Diode



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

Symbol	Parameter	Value	Unit	Test Conditions	Note
$V_{RRM}$	Repetitive Peak Reverse Voltage	650	V		
$V_{RSM}$	Surge Peak Reverse Voltage	650	V		
$V_{DC}$	DC Blocking Voltage	650	V		
$I_F$	Continuous Forward Current (Per Leg/ Per Device)	15/30	A	$T_C = 150^\circ\text{C}$	Fig. 7
$I_{FRM}$	Repetitive Peak Forward Surge Current	105*	A	$T_C = 25^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave	
$I_{FSM}$	Non-Repetitive Peak Forward Surge Current	135*	A	$T_C = 25^\circ\text{C}$ , $t_p = 10$ ms, Half Sine Wave	
$I_{F,Max}$	Non-Repetitive Peak Forward Surge Current	1200*	A	$T_C = 25^\circ\text{C}$ , $t_p = 10$ $\mu\text{s}$ , Pulse	
$P_{tot}$	Power Dissipation (Per Leg/ Per Device)	159* 68*	W	$T_C = 25^\circ\text{C}$ $T_C = 110^\circ\text{C}$	Fig. 6
$T_J, T_{stg}$	Operating Junction and Storage Temperature	-55 to +175	$^\circ\text{C}$		

\*Per Leg,

### Electrical Characteristics (Per Leg)

Symbol	Parameter	Typ.	Max.	Unit	Test Conditions	Note
$V_F$	Forward Voltage	1.45 1.75	1.8 3.0	V	$I_F = 15$ A $T_J = 25^\circ\text{C}$ $I_F = 15$ A $T_J = 175^\circ\text{C}$	Fig. 1
$I_R$	Reverse Current	4 40	20 200	$\mu\text{A}$	$V_R = 650$ V $T_J = 25^\circ\text{C}$ $V_R = 650$ V $T_J = 175^\circ\text{C}$	Fig. 2
$Q_C$	Total Capacitive Charge	41		nC	$V_R = 400$ V, $T_J = 25^\circ\text{C}$ $Q_C = \int_0^{V_R} C(V)dV$	Fig. 4
$C$	Total Capacitance	860 85 60		pF	$V_R = 0$ V, $T_J = 25^\circ\text{C}$ , $f = 1$ MHz $V_R = 200$ V, $T_J = 25^\circ\text{C}$ , $f = 1$ MHz $V_R = 400$ V, $T_J = 25^\circ\text{C}$ , $f = 1$ MHz	Fig. 3
$E_C$	Capacitance Stored Energy	8.2		$\mu\text{J}$	$V_R = 400$ V	Fig. 5

### Thermal Characteristics (Per Leg)

Symbol	Parameter	Typ.	Unit	Note
$R_{\theta JC}$	Thermal Resistance from Junction to Case	0.94	$^\circ\text{C}/\text{W}$	Fig. 8

Typical Performance(Per Leg)

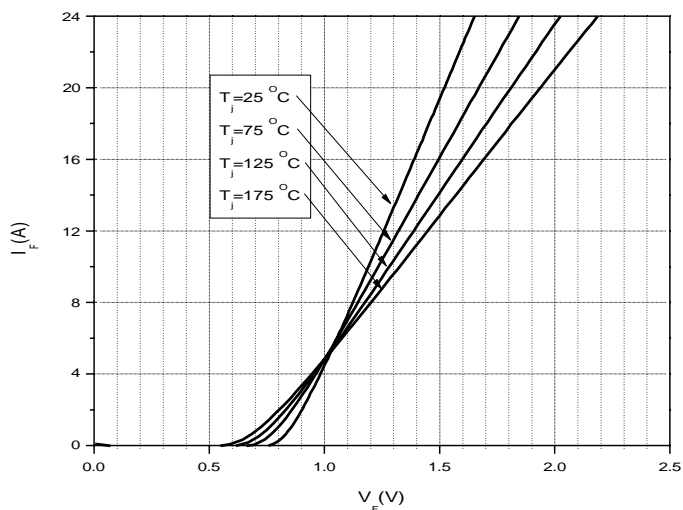
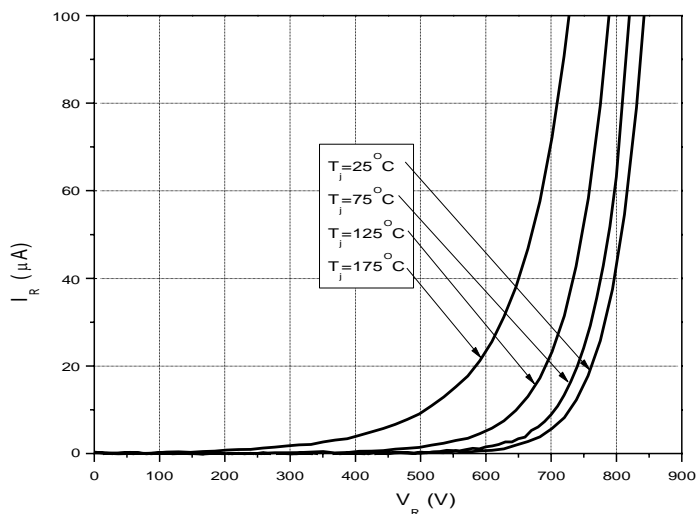


Figure 1. Forward Characteristics Figure



2. Reverse Characteristics

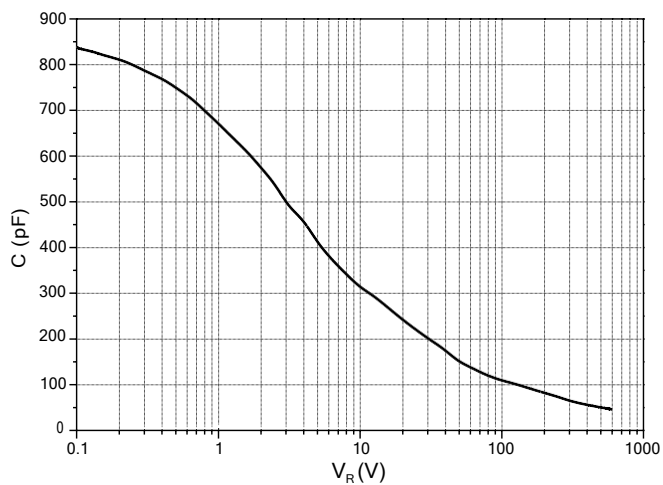
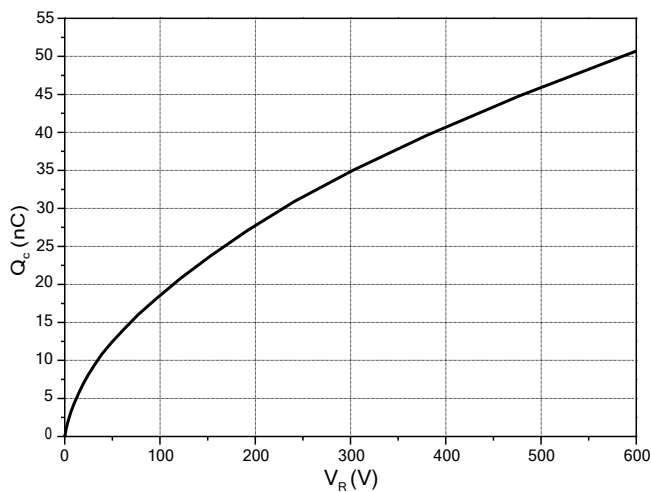


Figure 3. Capacitance vs. Reverse Voltage Figure



4. Total Capacitance Charge vs. Reverse Voltage

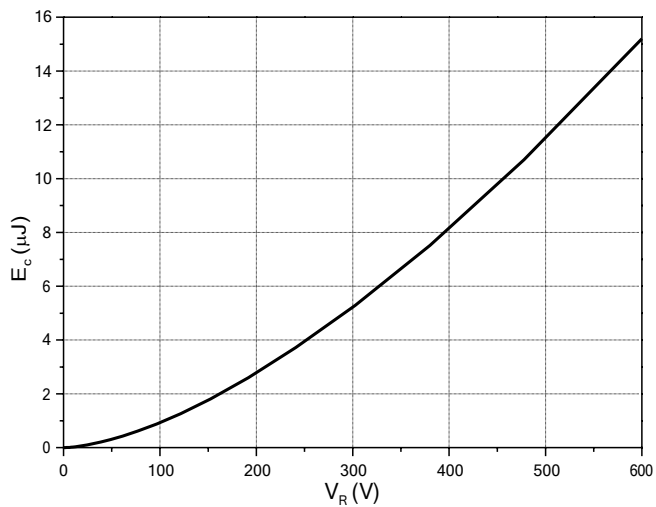
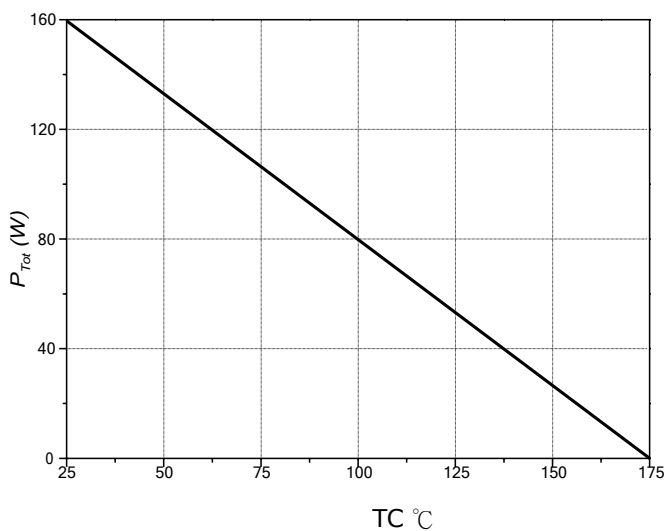


Figure 5. Capacitance Stored Energy Figure



6. Power Derating

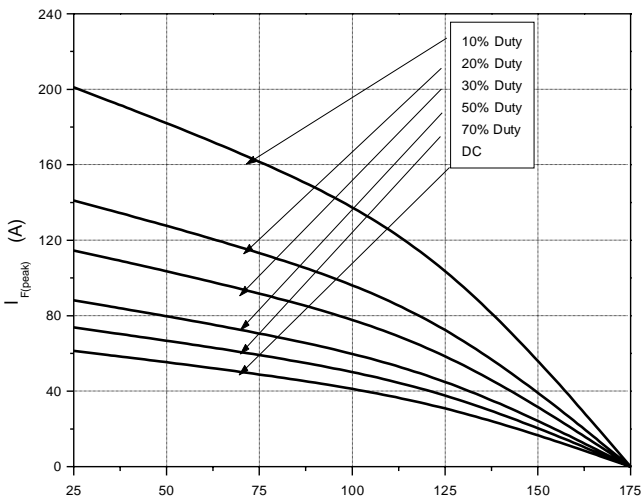
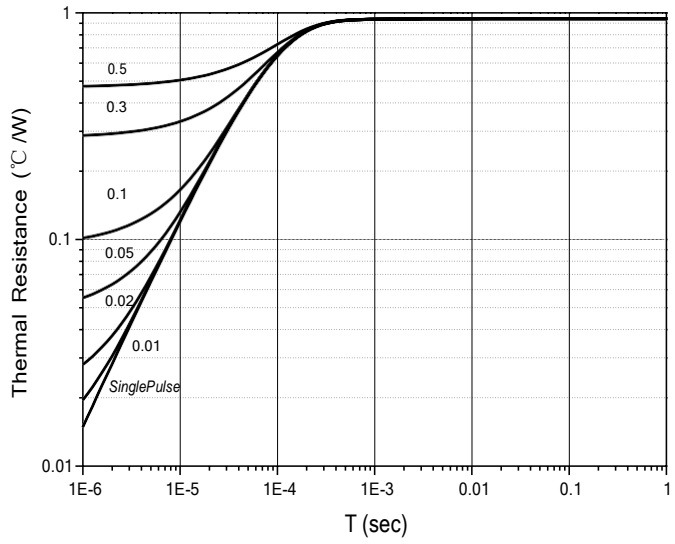
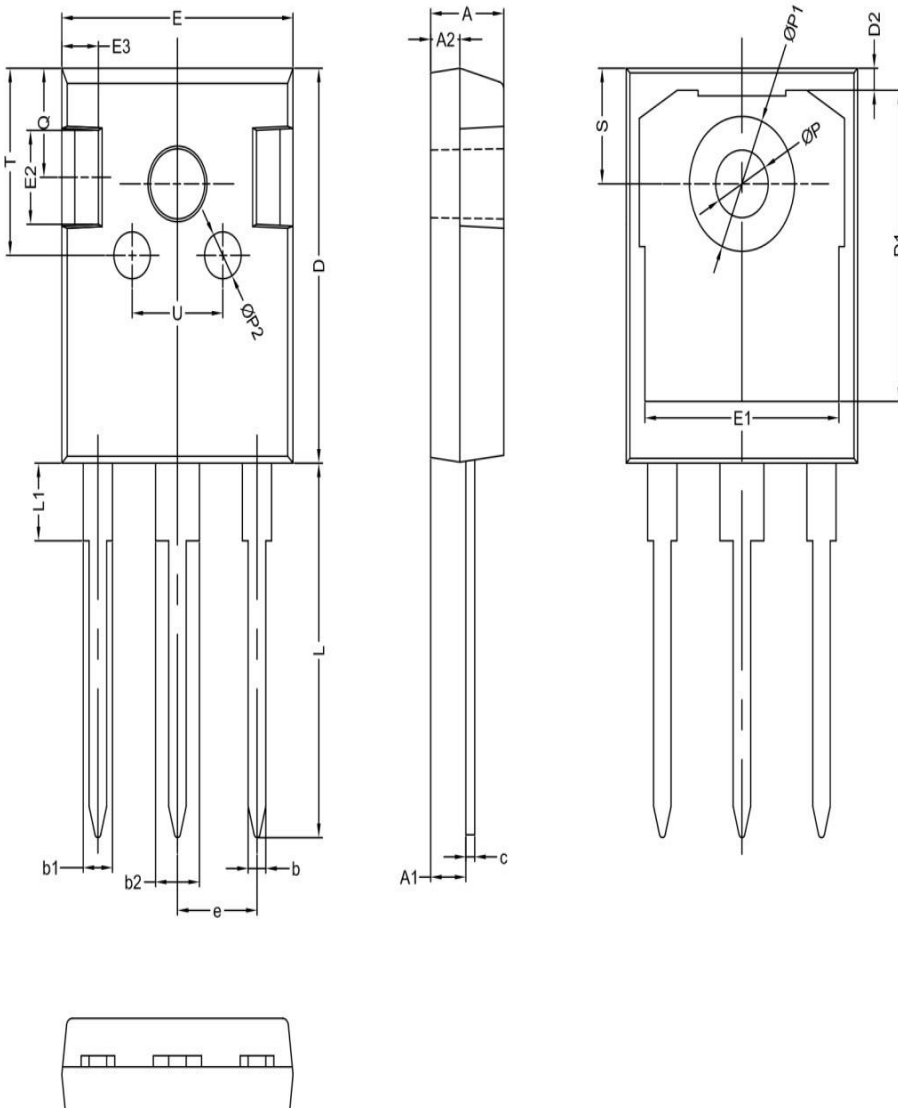


Figure 7. Current Derating Figure



8. Transient Thermal Impedance

**Package Dimensions: TO-247-3L**



符号	机械尺寸/mm		
	最小值	典型值	最大值
A	4.80	5.00	5.20
A1	2.21	2.41	2.61
A2	1.90	2.00	2.10
b	1.10	1.20	1.35
b1		2.00	
b2		3.00	
c	0.55	0.60	0.75
D	20.80	21.00	21.20
D1		16.55	
D2		1.20	
E	15.60	15.80	16.0
E1		13.30	
E2		5.00	
E3		2.50	
e		5.44	
L	19.42	19.92	20.42
L1		4.13	
P	3.50	3.60	3.70
P1	-	-	7.40
P2		2.50	
Q		5.80	
S	6.05	6.15	6.25
T		10.00	
U		6.20	