

$V_{RRM}$	650V
$I_F$	8A/16A( $T_C=150^\circ\text{C}$ )
$Q_C$	23/46nC

650V SILICON CARBIDE  
SCHOTTKY DIODE

### ◇ Features

- Negligible reverse recovery
- High-speed switching
- Positive Temperature Coefficient
- Temperature-Independent Switching
- Pb-free / RoHS compliant



### ◇ Benefits

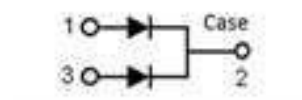
- Higher frequency
- Low heat dissipation requirements
- Reduce size and cost of the system
- High-reliability



TO-247AB

### ◇ Applications

- Switch mode power supply
- Solar inverter
- Data Center
- Uninterruptible power supply



## Maximum Ratings (Tc=25°C unless otherwise noted)

Symbol	Parameter		Value	Unit	Note
$V_{RRM}$	Repetitive peak reverse voltage		650	V	
$I_F$	Continuous forward current	Tc=25°C	21 / 42	A	Figure 3
		Tc=135°C	10 / 20	A	
		Tc=150°C	8 / 16	A	
$I_{FSM}$	Non-repetitive forward surge current	Tc=25°C, $t_p=10ms$ , Half sine pulse	74 / 148	A	
		Tc=110°C, $t_p=10ms$ , Half sine pulse	65 / 130	A	
$I_{FRM}$	Repetitive Peak Forward Surge Current	Tc=25°C, $t_p=10ms$ , Half sine pulse	66 / 132	A	
$\int i^2 dt$	$i^2t$ value	Tc=25°C, $t_p=10ms$	27 / 109	A <sup>2</sup> S	
		Tc=110°C, $t_p=10ms$	21 / 84	A <sup>2</sup> S	
$P_{tot}$	Power Dissipation	Tc=25°C	86 / 172	W	Figure 4
		Tc=110°C	37 / 74	W	
		Tc=150°C	14 / 28	W	
$T_j, T_{stg}$	Operating and Storage Temperature		-55 to +175	°C	

## Electrical Characteristics (Tc=25°C unless otherwise noted) (Per Leg)

Symbol	Parameter	Test Conditions	Value			Unit	Note
			Min.	Typ.	Max.		
$V_{DC}$	DC blocking voltage		650	-	-	V	
$V_F$	Forward voltage	$I_F=4A$	-	1.18	-	V	Figure 1
		$I_F=8A, T_c=25^\circ C$	-	1.39	1.6	V	
		$I_F=8A, T_c=175^\circ C$		1.74		V	
$I_R$	Reverse current	$V_R=650V, T_c=25^\circ C$	-	6	60	uA	Figure 2
		$V_R=650V, T_c=175^\circ C$		12		uA	
$Q_C$	Total capacitive charge	$V_R=400V$	-	23	-	nC	Figure 6
$C$	Total capacitance	$V_R=1V, f=1MHZ$	-	338	-	pF	Figure 5
		$V_R=200V, f=1MHZ$	-	44	-	pF	
		$V_R=400V, f=1MHZ$	-	43	-	pF	
$E_C$	Capacitance Stored Energy	$V_R=400V$	-	3.8	-	uJ	Figure 7

## Thermal Characteristics (Per Leg)

Symbol	Parameter	Value		Unit	Note
		Typ.	Max.		
$R_{th(j-c)}$	Thermal resistance (Junction to case)	1.734	-	°C/W	Figure 8

## Electrical Characteristic Curves (Per Leg)

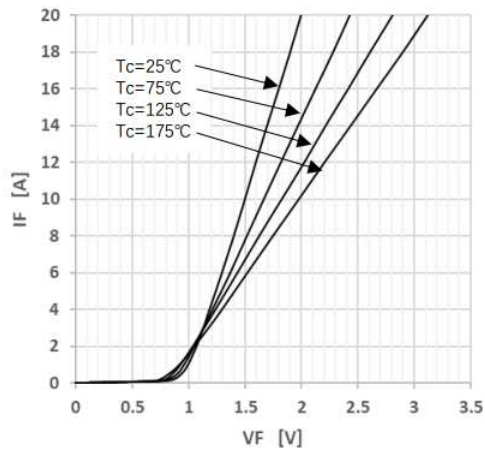


Figure 1 Forward Characteristics

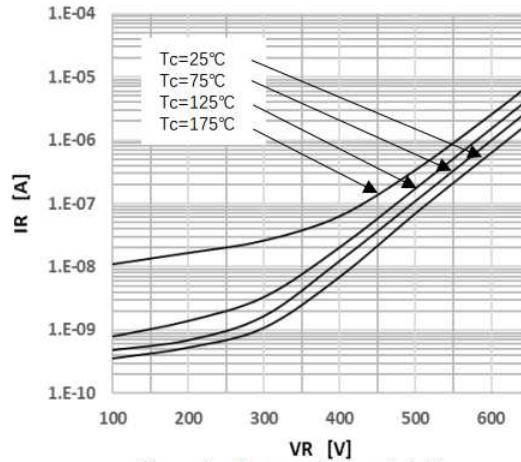


Figure 2 Reverse Characteristics

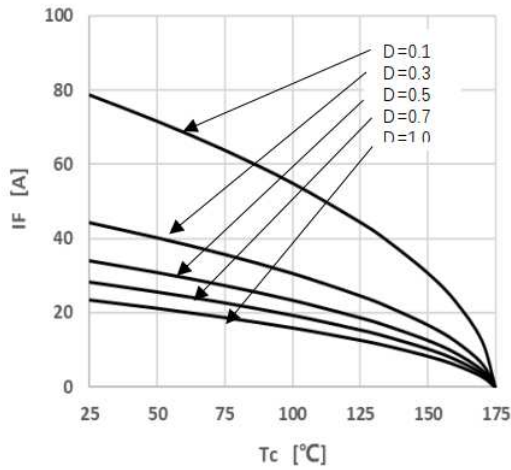


Figure 3 Peak Forward Current Derating

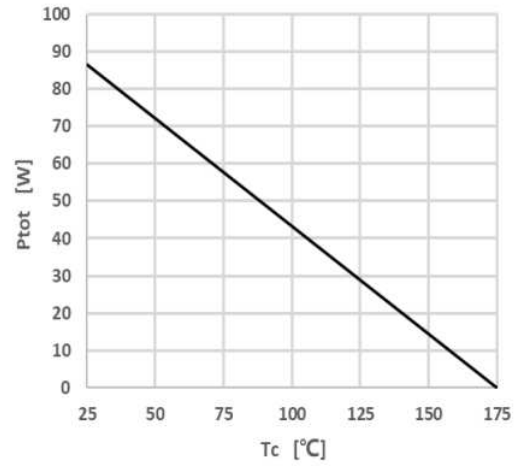


Figure 4 Power Dissipation

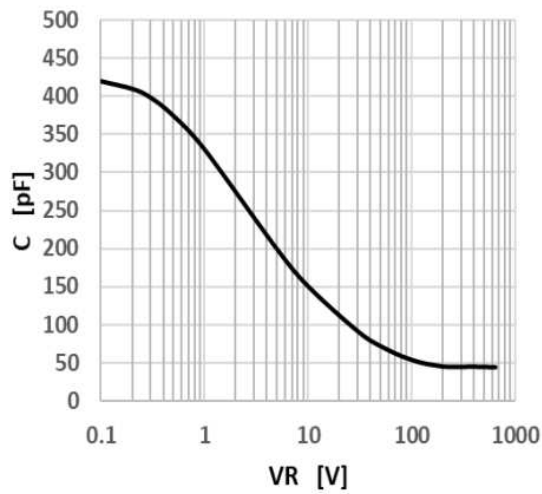


Figure 5 Capacitance vs. Reverse Voltage

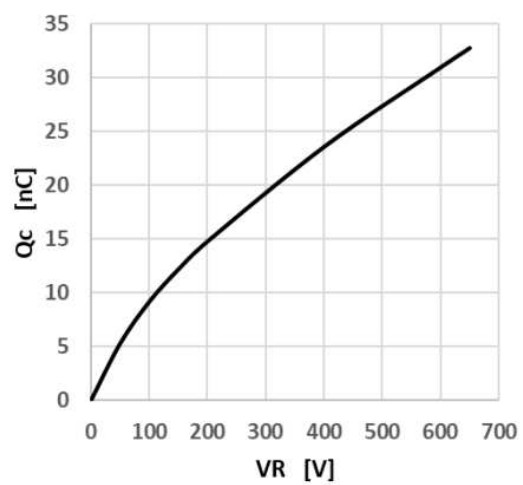


Figure 6 Capacitance Charge vs. Reverse Voltage

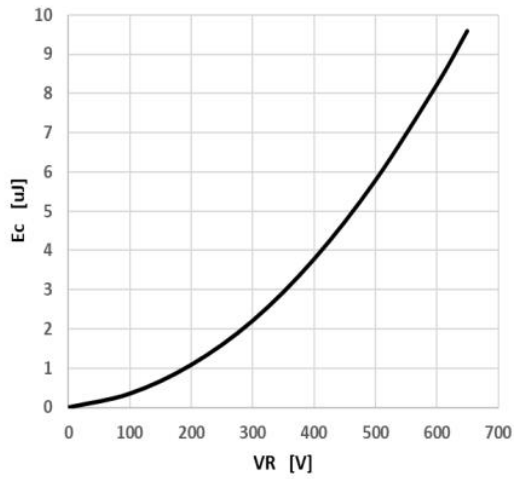


Figure 7 Capacitance Stored Energy

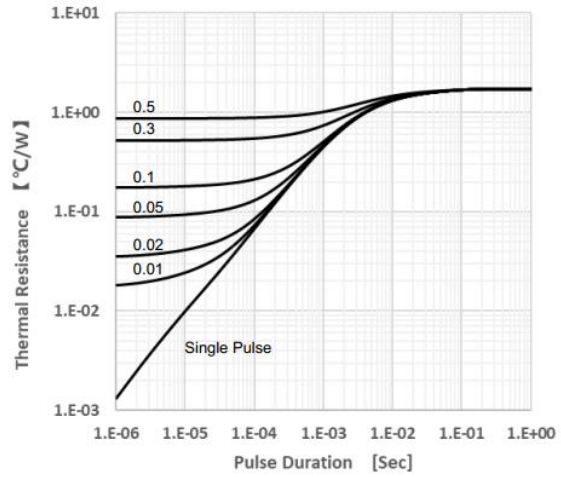
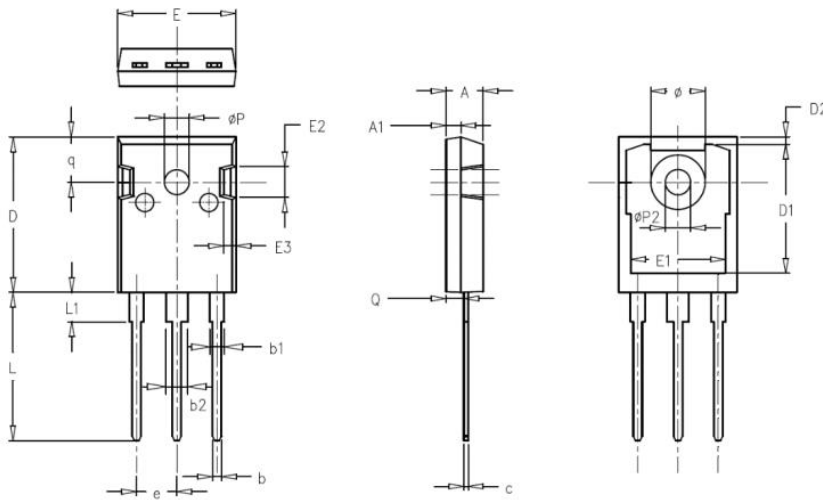


Figure 8 Transient Thermal Impedance

TO-247AB Package Dimensions : (Unit : mm)



SYMBOL	MILLIMETERS			NOTES	SYMBOL	MILLIMETERS			NOTES
	Normal	MIN.	MAX.			Normal	MIN.	MAX.	
A	4.98	4.68	5.36		φP	3.66	3.45	3.85	
A1	1.99	1.90	2.10		e	5.44	BSC		
Q	2.41	2.30	2.60		q	6.24	5.99	6.58	
c	0.60	0.48	0.72		φP2	3.45	3.24	3.64	
b	1.20	1.00	1.40		φ	7.14	7.10	7.30	
b1	2.07	1.90	2.30		D1	16.56	16.10	17.10	
b2	3.07	2.90	3.30		D2	0.98	0.80	1.36	
D	21.10	20.80	21.80		E1	13.30	13.00	13.52	
E	15.98	15.38	16.20		E2	5.64	5.10	6.10	
L	20.28	19.50	20.50		E3	2.33	1.90	2.70	
L1	4.01	3.75	4.35						

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