Silicon Carbide Schottky Diode

Product Preview

FFSM1065B

650 V, 10 A

MAXIMUM RATINGS (T_J = 25°C unless otherwise noted)

Parameter		Symbol	Value	Unit
Peak Repetitive Reverse Voltage		V_{RRM}	650	V
Single Pulse Avalanche Energy	T_J = 25°C, I_{LPK} = 18 A, L = 0.5 mH, V = 50 V	E_{AS}	TBD	mJ
Continuous Rectified Forward Current	T_C = 124°C	I_F	10	A
	T_C = 135°C		8.54	
Non−Repetitive Peak Forward Surge Current	T_C = 25°C, t_P = 10 μs	I_{FM}	635	A
	T_C = 150°C, t_P = 10 μs		577	
Power Dissipation	T_C = 25°C	P_{tot}	50.2	W
	T_C = 150°C		8.37	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	−55 to +175	°C
Lead Temperature for Soldering Purposes		T_L	TBD	°C

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

THERMAL CHARACTERISTICS

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction−to−Case	$R_{\theta JC}$	2.99	°C/W

This document contains information on a product under development. ON Semiconductor reserves the right to change or discontinue this product without notice.

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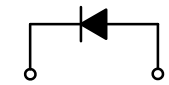
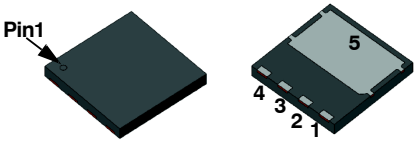


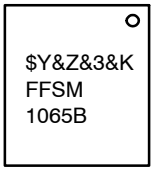
5. Cathode 3, 4. Anode
1, 2. Floating

Schottky Diode



PQFN 8×8, 2P
CASE 483AP

MARKING DIAGRAM



$Y	= ON Semiconductor Logo
&Z	= Assembly Plant Code
&3	= Numeric Date Code
&K	= Lot Code
FFSM1065B	= Specific Device Code

ORDERING INFORMATION

See detailed ordering and shipping information on page 2 of this data sheet.

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
DIODE CHARACTERISTICS						
V_F	Forward Voltage	I_F = 10 A, T_C = 25°C	–	1.42	–	V
		I_F = 10 A, T_C = 125°C	–	1.57	–	
		I_F = 10 A, T_C = 175°C	–	1.72	–	
I_R	Reverse Current	V_R = 650 V, T_C = 25°C	–	–	40	μA
		V_R = 650 V, T_C = 125°C	–	–	80	
		V_R = 650 V, T_C = 175°C	–	–	160	
CHARGES, CAPACITANCES & GATE RESISTANCE						
Q_C	Total Capacitive Charge	V_C = 600 V	–	31.3	–	nC
C_{tot}	Total Capacitance	V_R = 1 V, f = 100 kHz	–	406	–	pF
		V_R = 200 V, f = 100 kHz	–	45.9	–	
		V_R = 400 V, f = 100 kHz	–	37.2	–	

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

PACKAGE MARKING AND ORDERING INFORMATION

Part Number	Top Marking	Package	Shipping†
FFSM1065B	FFSM1065B	PQFN 8x8, 2P (Halogen Free)	3000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

TYPICAL CHARACTERISTICS

(T_J = 25°C unless otherwise noted)

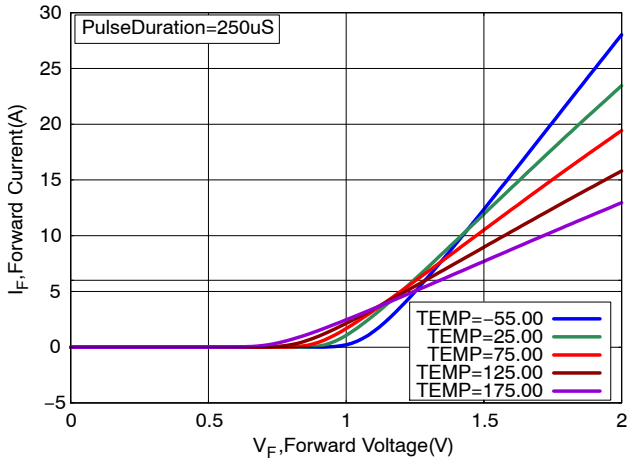


Figure 1. Forward Characteristics

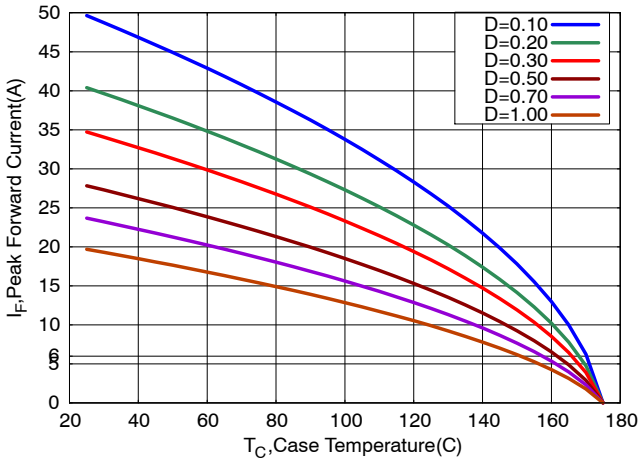


Figure 2. Current Derating

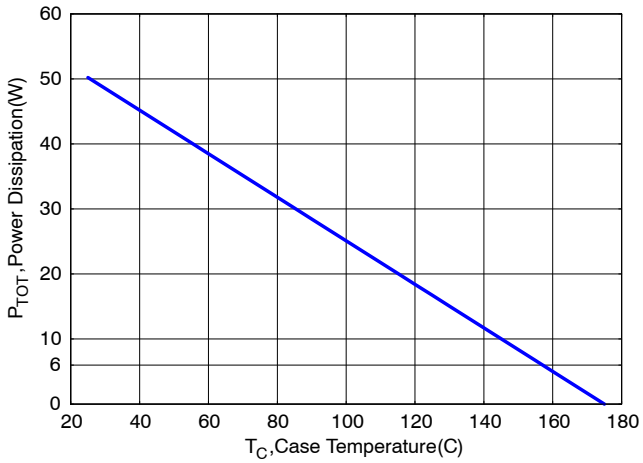


Figure 3. Power Derating

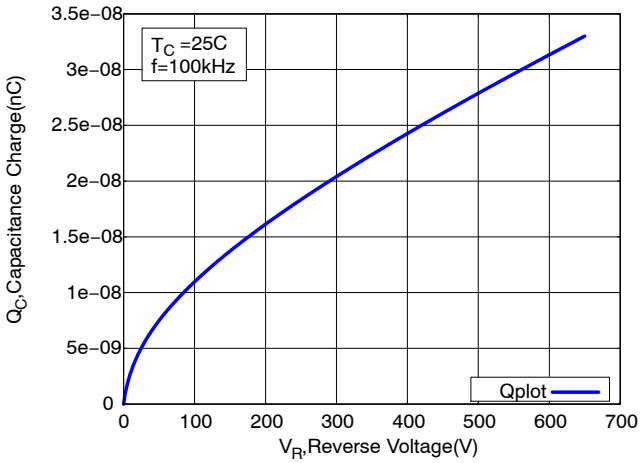


Figure 4. Capacitive Charge vs. Reverse Voltage

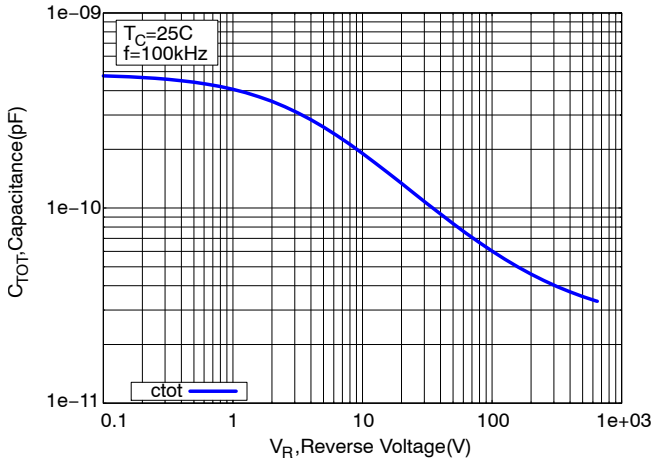


Figure 5. Capacitance vs. Reverse Voltage

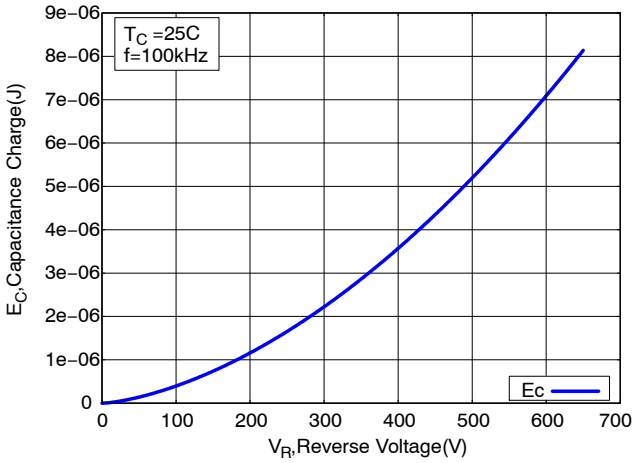


Figure 6. Capacitance Stored Energy

TYPICAL CHARACTERISTICS

(T_J = 25°C unless otherwise noted)

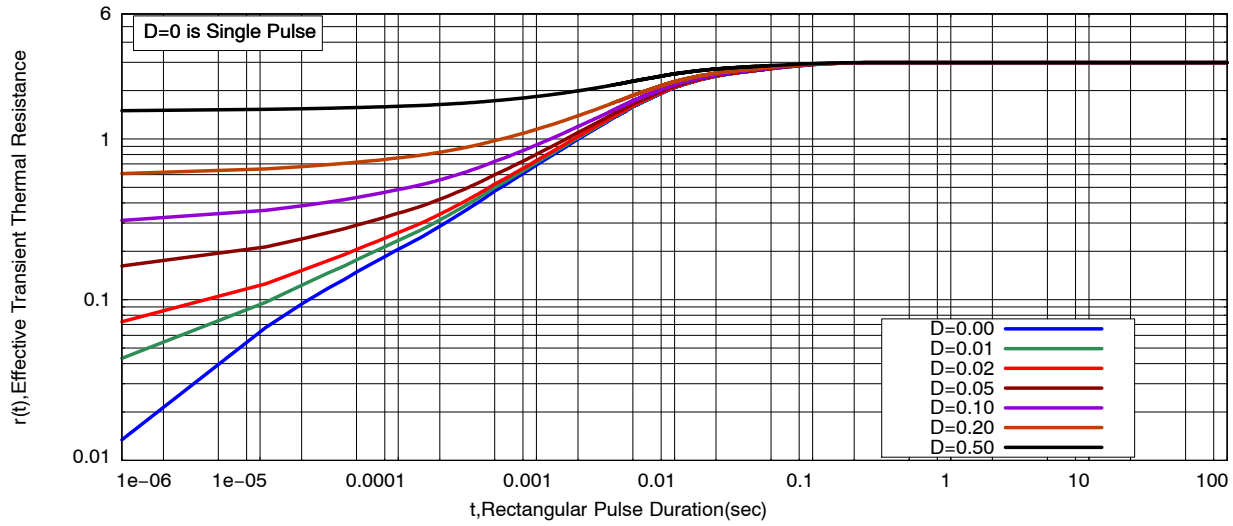
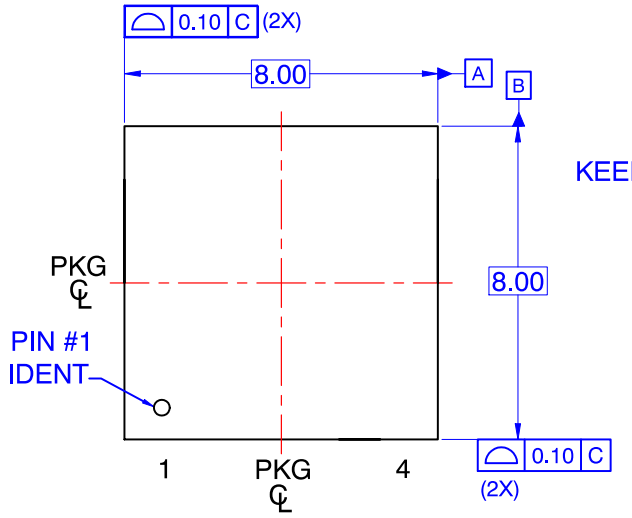


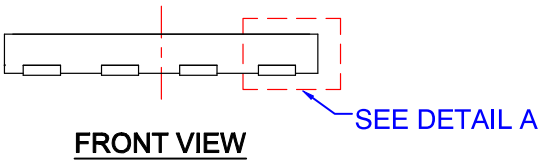
Figure 7. Junction-to-Case Transient Thermal Response

PACKAGE DIMENSIONS

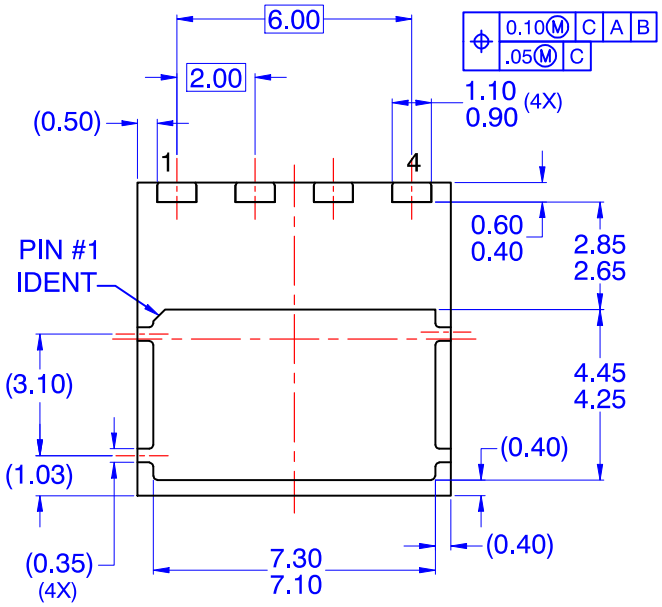
PQFN4 8X8, 2P
CASE 483AP
ISSUE O



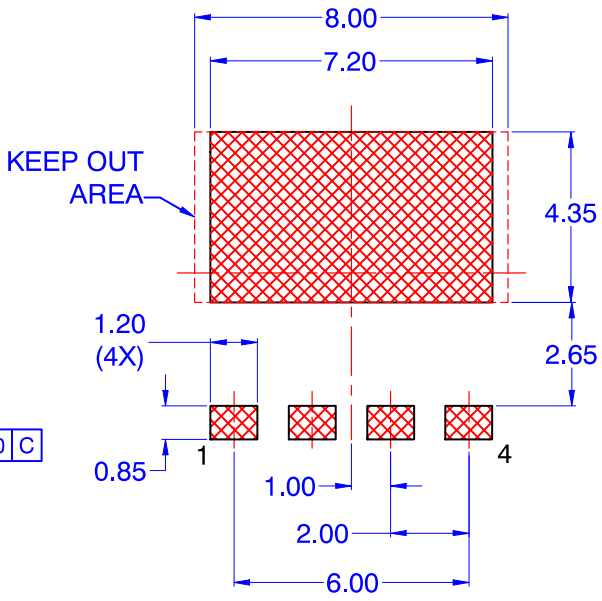
TOP VIEW



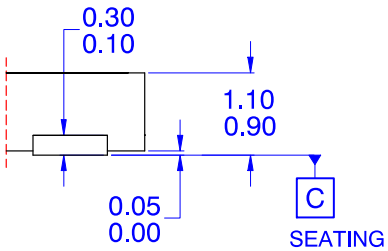
FRONT VIEW



BOTTOM VIEW



LAND PATTERN
RECOMMENDATION



DETAIL A
SCALE: 2X

NOTES: UNLESS OTHERWISE SPECIFIED
A) THIS PACKAGE IS NOT PRESENTLY REGISTERED WITH ANY STANDARDS COMMITTEE.
B) DIMENSIONS ARE INCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR PROTRUSIONS.
C) ALL DIMENSIONS ARE IN MILLIMETERS.
D) DRAWING CONFORMS TO ASME Y14.5M–1994.

PUBLICATION ORDERING INFORMATION

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