

Silicon Carbide (SiC) Schottky Diode - EliteSiC, 8 A, 650 V, D2, DPAK

FFSD0865B

Silicon Carbide (SiC) Schottky Diodes use a completely new technology that provides superior switching performance and higher reliability compared to Silicon. No reverse recovery current, temperature independent switching characteristics, and excellent thermal performance sets Silicon Carbide as the next generation of power semiconductor. System benefits include highest efficiency, faster operating frequency, increased power density, reduced EMI, and reduced system size and cost.

Features

Max Junction Temperature 175 C

Avalanche Rated 33 mJ

High Surge Current Capacity

Positive Temperature Coefficient

Ease of Paralleling

No Reverse Recovery/No Forward Recovery

These Devices are Pb Free, Halogen Free/BFR Free and are RoHS Compliant

Applications

General Purpose

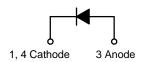
SMPS, Solar Inverter, UPS

Power Switching Circuits

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 (7 $I_{L(pk)} = 11.5 \text{ A}, L = 0.5 \text{ mH}, V = 50 \text{ mH}$	E _{AS}	33	mJ	
Continuous Rectified Forward Current	T _C < 153	IF	8.0	Α
Current	T _C < 135		11.6	
Non–Repetitive Peak Forward Surge Current	$T_{C} = 25 \text{ C},$ $t_{P} = 10 \mu\text{s}$	I _{FM}	577	Α
	$T_C = 150 \text{ C},$ $t_P = 10 \mu\text{s}$		538	
Non-Repetitive Forward Surge Current (Half-Sine Pulse)	$T_C = 25 \text{ C}$ $t_P = 8.3 \text{ ms}$	I _{FSM}	42	Α
Power Dissipation	T _C = 25 C	P _{tot}	91	W
	T _C = 150 C		15	
Operating Junction and Storage T Range	T _J , T _{stg}	-55 to +175	С	

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.

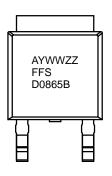


Schottky Diode

2 3 DPAK

MARKING DIAGRAM

CASE 369AS



YWW ZZ FFSD0865B = Assembly Plant Code = Date Code (Year & Week)

= Lot Code

= Specific Device Code

ORDERING INFORMATION

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

FFSD0865B

THERMAL RESISTANCE

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case		1.64	C/W

ELECTRICAL CHARACTERISTICS

Symbol	Parameter	Test Conditions	Min	Тур	Max	Unit
N CHARAC	TERISTICS		•	•	•	
V _F	Forward Voltage	I _F = 8.0 A, T _J = 25 C	-	1.39	1.7	V
		I _F = 8.0 A, T _J = 125 C	-	1.55	2.0	1
		I _F = 8.0 A, T _J = 175 C	-	1.71	2.4	1
I _R	Reverse Current	V _R = 650 V, T _J = 25 C	-	0.5	40	μΑ
		V _R = 650 V, T _J = 125 C	-	1.0	80	
		V _R = 650 V, T _J = 175 C	-	2.0	160	1
HARGES, C	APACITANCES & GATE RES	ISTANCE				
Q _C	Total Capacitive Charge	V _C = 400 V	-	22	_	nC
C _{tot}	7	V _R = 1 V, f = 100 kHz	-	336	_	pF
		V _R = 200 V, f = 100 kHz	-	39	_	
		V _R = 400 V, f = 100 kHz	-	30	_	1

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.

PART MARKING AND ORDERING INFORMATION

Part Number	Top Mark	Package	Packing Method [†]	Reel Size	Tape Width	Quantity
FFSD0865B	FFSD0865B	DPAK	Tape & Reel	330 mm	16 mm	2500 units

[†]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.

FFSD0865B

TYPICAL CHARACTERISTICS

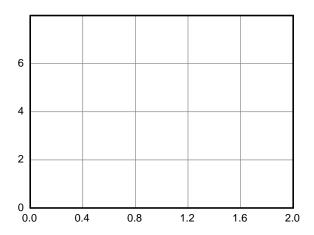


Figure 1. Forward Characteristics

Figure 2. Reverse Characteristics

Figure 3. Current Derating

Figure 4. Power Derating

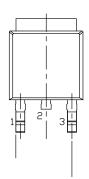
Figure 5. Capacitive Charge vs. Reverse Voltage

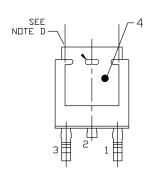
Figure 6. Capacitance vs. Reverse Voltage

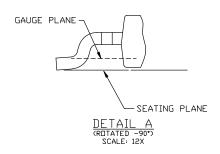


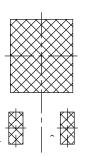
DPAK3 6.10x6.54x2.29, 4.57P CASE 369AS ISSUE B

DATE 20 DEC 2023









LAND PATTERN RECOMMENDATION

GENERIC MARKING DIAGRAM*

XXXXXX XXXXXX AYWWZZ

*This information is generic. Please refer to device data sheet for actual part marking. Pb-Free indicator, "G" or microdot "•", may or may not be present. Some products may not follow the Generic Marking.

XXXX = Specific Device Code

A = Assembly Location Y = Year

Y = Year WW = Work Week

ZZ = Assembly Lot Code

