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Please note: As part of the Fairchild Semiconductor integration, some of the Fairchild orderable part numbers will need to change in order to meet ON Semiconductor's system requirements. Since the ON Semiconductor product management systems do not have the ability to manage part nomenclature that utilizes an underscore (_), the underscore (_) in the Fairchild part numbers will be changed to a dash (-). This document may contain device numbers with an underscore (_). Please check the ON Semiconductor website to verify the updated device numbers. The most current and up-to-date ordering information can be found at www.onsemi.com. Please email any questions regarding the system integration to Fairchild_questions@onsemi.com.

June 2017

FS8G - FS8M
8 A Standard Recovery Surface Mount Rectifiers

Features

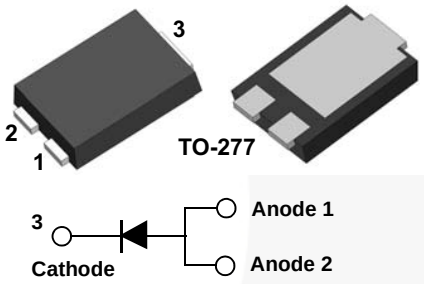
- Very High forward Surge Capability: I_{FSM} = 230 A
- Low Leakage Current: 0.37 µA at T_A = 25°C
- Very Low Profile: Typical Height of 1.1 mm
- Glass Passivated Junction
- Lead Free in Compliance with EU RoHS 2011/65/EU Directive
- Green Molding Compound as per IEC61249 Standard
- Qualified per AEC-Q101 REV. C standard
- HBM (JEDEC A114) > 8 KV; CDM (JEDEC C101C) > 2KV

Applications

- General-Purpose Applications
- Reverse Polarity Protection
- Rectifications

Description

The FS8G to FS8M series offers breakthrough size and performance. It sinks 8 A DC forward current and provides up to 230 A surge current capability with only 0.37 µA reverse leakage current. All this capability is packed into a small, flat-lead, TO-277 package, optimized for space-constrained applications.



Ordering Information

Part Number	Top Mark	Package	Packing Method
FS8G	FS8G	TO-277 3L (No DAP Option)	Tape and Reel
FS8J	FS8J	TO-277 3L (No DAP Option)	Tape and Reel
FS8K	FS8K	TO-277 3L (No DAP Option)	Tape and Reel
FS8M	FS8M	TO-277 3L (No DAP Option)	Tape and Reel

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value				Unit
		FS8G	FS8J	FS8K	FS8M	
V_{RRM}	Maximum Repetitive Peak Reverse Voltage	400	600	800	1000	V
V_{RMS}	Maximum RMS Reverse Voltage	280	420	560	700	V
V_{DC}	DC Blocking Voltage	400	600	800	1000	V
$I_{F(AV)}$	Maximum Average Rectified Forward Current	8				A
I_{FSM}	Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	230				A
T_J	Operating Junction Temperature Range	-55 to +150				°C
T_{STG}	Storage Temperature Range	-55 to +150				°C

Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Minimum Land Pattern	Maximum Land Pattern	Unit
$R_{\theta JA}$	Junction-to-Ambient Thermal Resistance	100	40	°C/W
Ψ_{JL}	Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Anode	20	12	°C/W
	Junction-to-Lead Thermal Characteristics, Thermocouple Soldered to Cathode	6	5	

Note:

1. The thermal resistances ($R_{\theta JA}$ & Ψ_{JL}) are characterized with device mounted on the following FR4 printed circuit boards, as shown in Figure 1 and Figure 2. PCB size: 76.2 x 114.3 mm. Minimum land pattern size: 4.9 x 4.8 mm (big pattern, x1), 1.4 x 1.52 mm (small pattern, x2). Maximum land pattern size: 30 x 30 mm (pattern, x2). Force line trace size = 55 mils, sense line trace size = 4 mils.

Figure 1. Minimum Land Pattern of 2 oz Copper

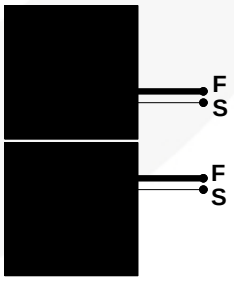


Figure 2. Maximum Land Pattern of 2 oz Copper

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
V_F	Forward Voltage	I_F = 8 A		0.951	1.1	V
		I_F = 8 A, T_A = 125°C		0.845		
I_R	DC Reverse Current	$V_R = V_{DC}$		0.37	5	µA
		$V_R = V_{DC}$, T_A = 125°C		84		
T_{rr}	Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{rr} = 0.25 A		3.37		µs
C_J	Junction Capacitance	V_R = 0 V, f = 1 MHz		118		pF

Typical Performance Characteristics

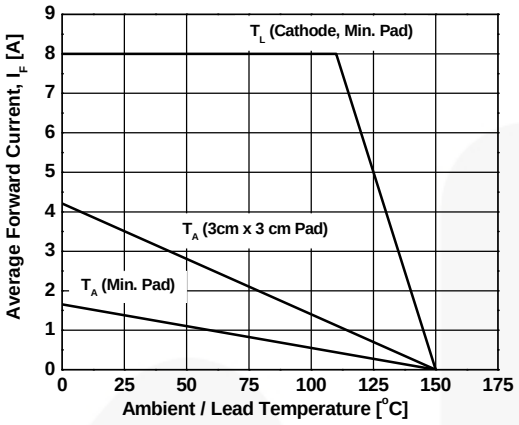


Figure 3. Forward Current Derating Curve

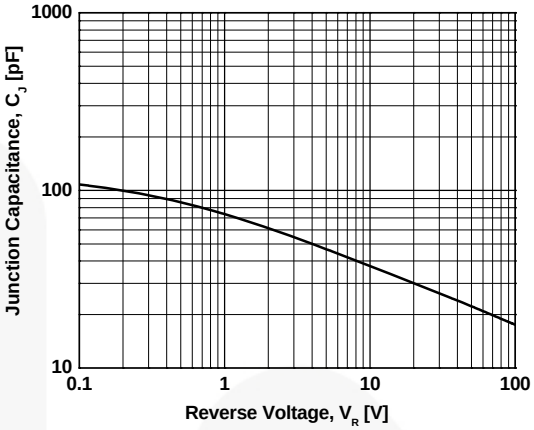


Figure 4. Typical Junction Capacitance

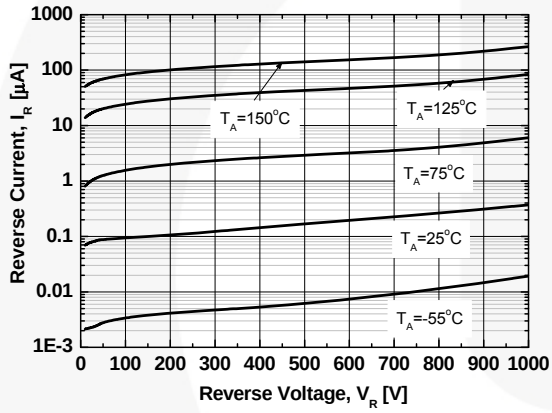


Figure 5. Typical Reverse Characteristics

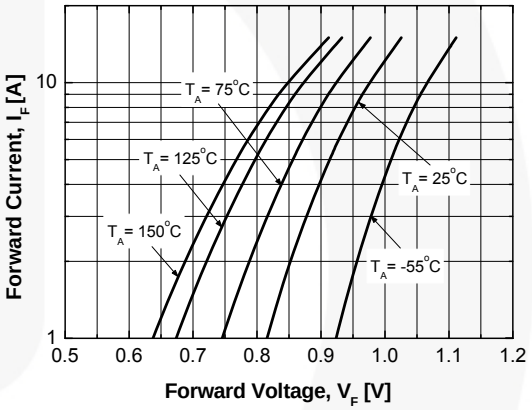


Figure 6. Typical Forward Characteristics

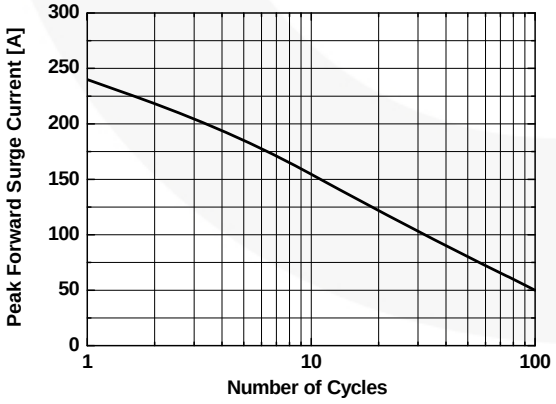
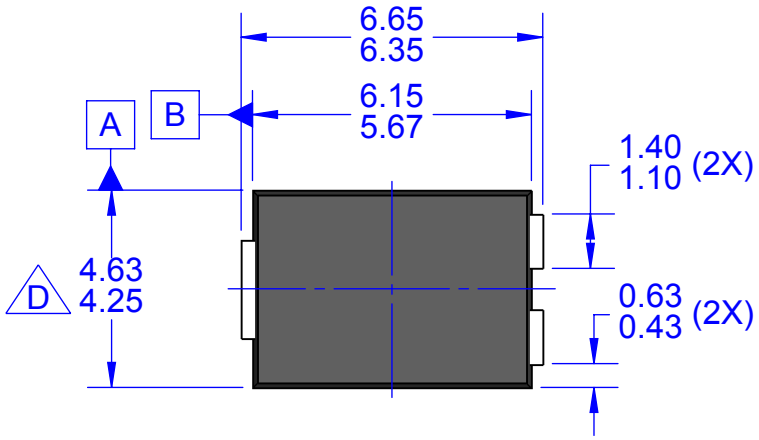
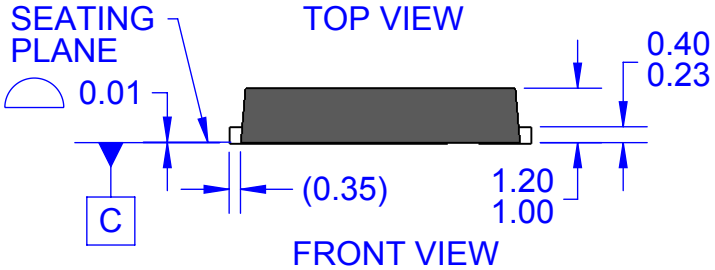


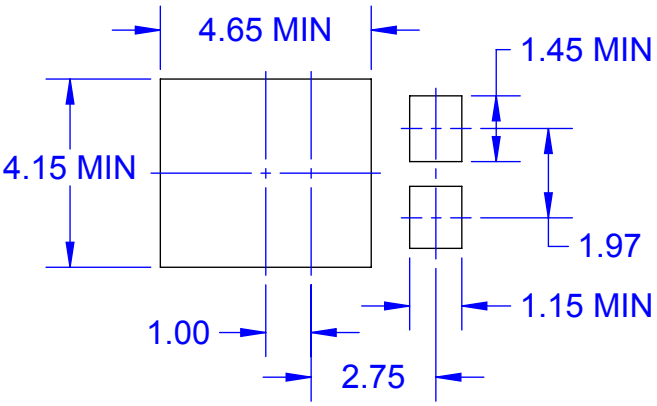
Figure 7. Maximum Non-repetitive Peak Forward Surge current



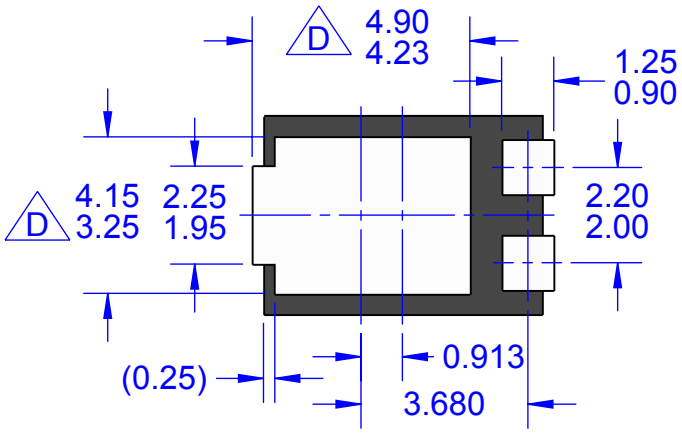
TOP VIEW



FRONT VIEW



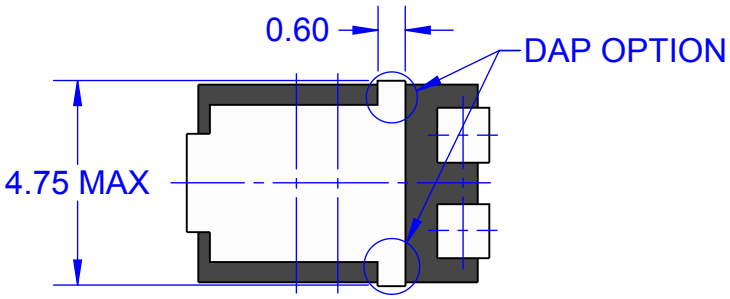
LAND PATTERN RECOMMENDATION



BOTTOM VIEW

NOTES: UNLESS OTHERWISE SPECIFIED

A. PACKAGE REFERENCE: JEDEC TO-277
B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
C. ALL DIMENSIONS ARE IN MILLIMETERS.
D DOES NOT COMPLY TO JEDEC STANDARD VALUE.
E. DRAWING FILENAME: MKT-TO277A03rev5



BOTTOM VIEW - DAP OPTION

FAIRCHILD ™

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