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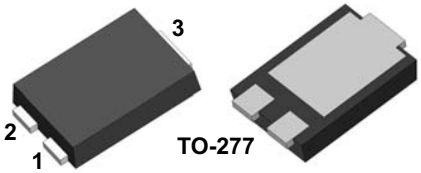
October 2016

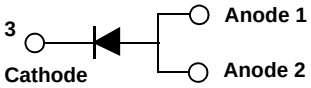
FES10D - FES10J
10 A, 200 V - 600 V Surface Mount Ultrafast Rectifiers

Features

- Very Low Profile: Typical Height of 1.1 mm
- Ultrafast Recovery Time
- Low Forward Voltage Drop
- Low Thermal Resistance
- Very Stable Operation at Industrial temperature, 150 °C
- RoHS Compliant
- Green Molding Compound as per IEC61249 Standard
- Lead Free in Compliance with EU RoHS 2011/65/EU Directive
- Industrial Device Qualified per AEC-Q101 Standards

  * See authorized use policy





Ordering Information

Part Number	Top Mark	Package	Packing Method
FES10D	FES10D	TO-277 3L	Tape and Reel
FES10G	FES10G	TO-277 3L	Tape and Reel
FES10J	FES10J	TO-277 3L	Tape and Reel

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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
		FES10D	FES10G	FES10J	
V_{RRM}	Repetitive Peak Reverse Voltage	200	400	600	V
$I_{F(AV)}$	Average Forward Rectified Current	10			A
I_{FSM}	Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	150			A
T_J	Operating Junction Temperature Range	-55 to +175			°C
T_{STG}	Storage Temperature Range	-55 to +175			°C

Thermal Characteristics[1]

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

Symbol	Parameter	Value	Unit
Ψ_{JL}	Thermal Characteristics, Junction-to-Lead, Thermocouple Soldered to Cathode	6	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	100	°C/W

Note:

1. Per JESD51-3 Recommended Thermal Test Board.

Electrical Characteristics

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

Symbol	Parameter	Conditions	Value			Unit
			FES10D	FES10G	FES10J	
V_F	Maximum Instantaneous Forward Voltage[2]	I_F = 10 A	0.95	1.20	1.80	V
		I_F = 10 A, T_J= 125 °C	0.86	1.00	-	
I_R	Maximum Reverse Current at Rated V_R	T_J = 25 °C	5			µA
		T_J = 125 °C	250	500		
C_J	Typical Junction Capacitance	V_R = 4 V, f = 1 MHz	140			pF
T_{rr}	Typical Reverse Recovery Time	I_F = 0.5 A, I_R = 1 A, I_{RR} = 0.25 A	30			ns
		I_F = 1 A, di/dt = 50 A/µs, V_R = 30 A	40			ns

Note:

2. Pulse test with PW = 300 µs, 1% duty cycle

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Typical Performance Characteristics

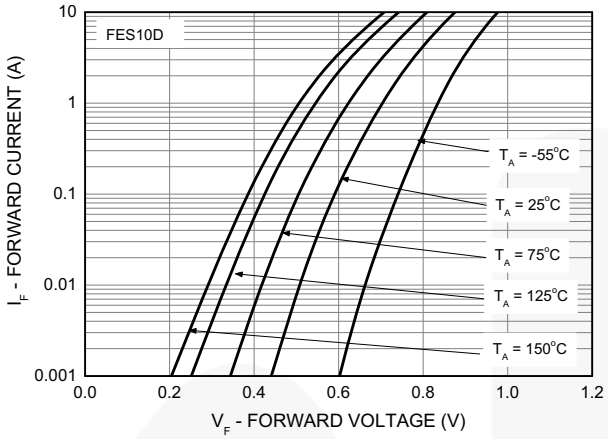

Fig 1. Typical Forward Characteristics for FES10D

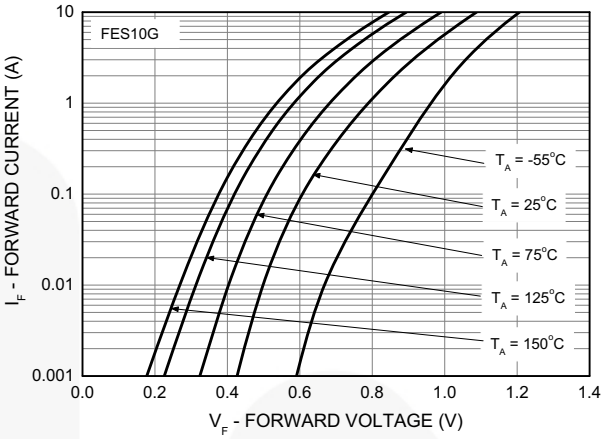

Fig 2. Typical Forward Characteristics for FES10G

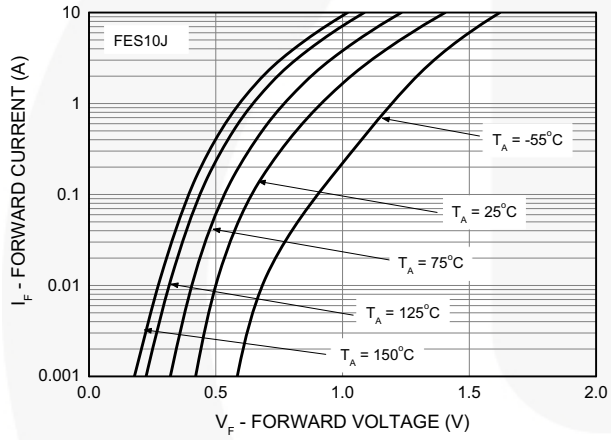

Fig 3. Typical Forward Characteristics for FES10J

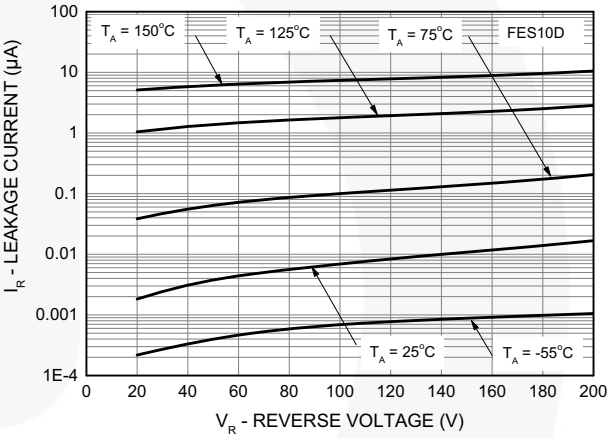

Fig 4. Typical Reverse Characteristics for FES10D

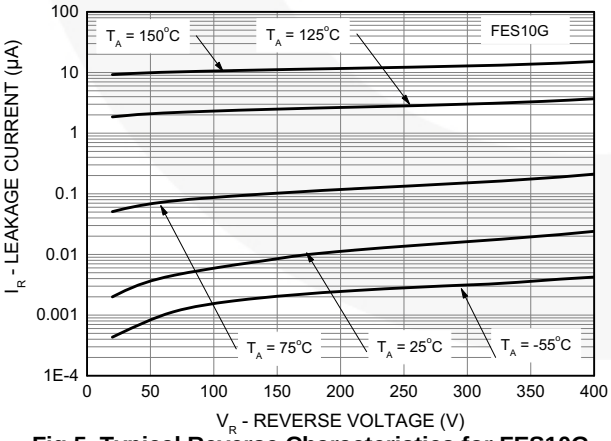

Fig 5. Typical Reverse Characteristics for FES10G

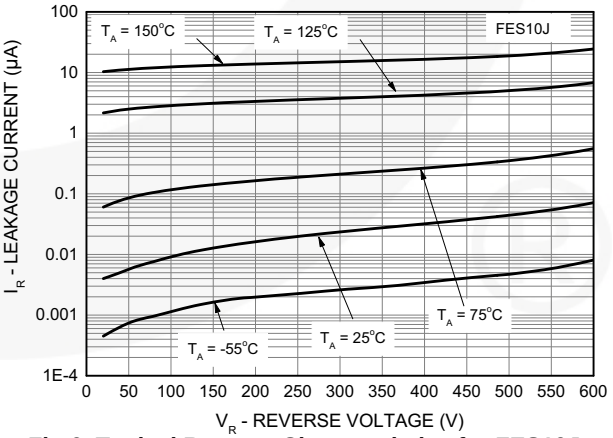

Fig 6. Typical Reverse Characteristics for FES10J

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Typical Performance Characteristics (Continued)

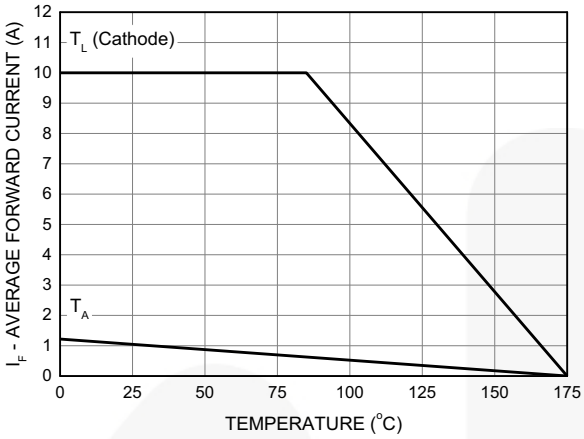

Fig 7. Forward Current Derating Curve

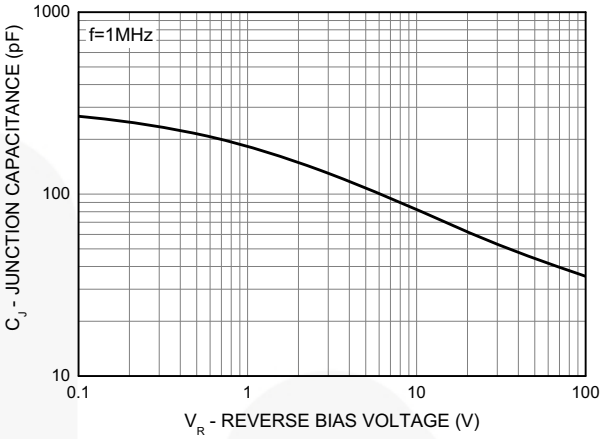

Fig 8. Typical Junction Capacitance

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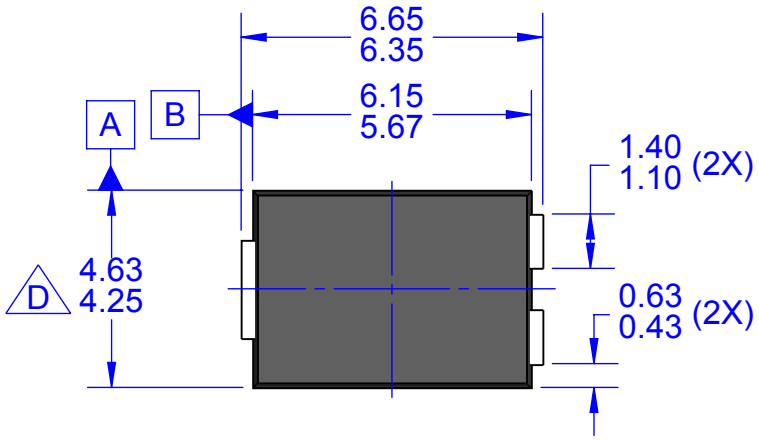
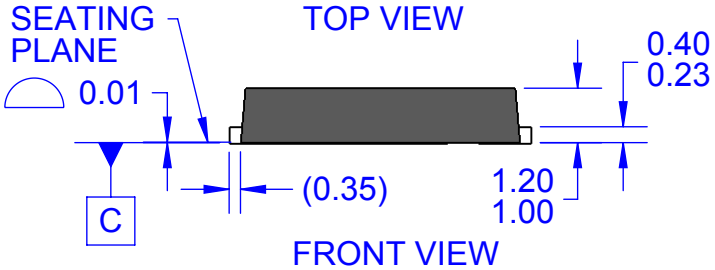
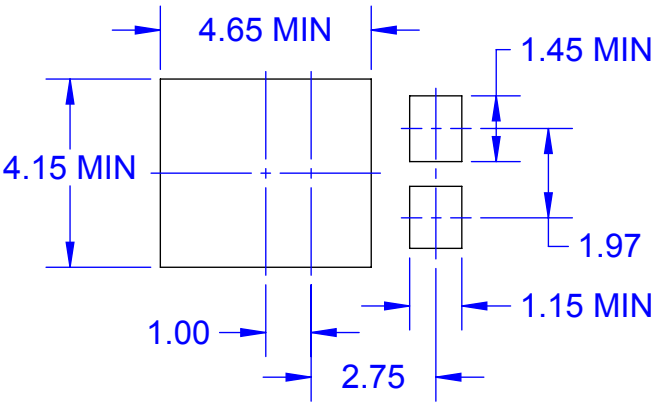


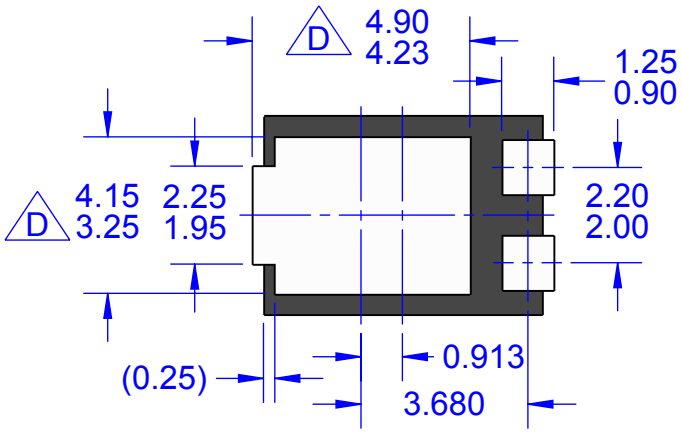
TOP VIEW



FRONT VIEW



LAND PATTERN RECOMMENDATION



BOTTOM VIEW

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B. DIMENSIONS ARE EXCLUSIVE OF BURRS, MOLD FLASH, AND TIE BAR EXTRUSIONS.
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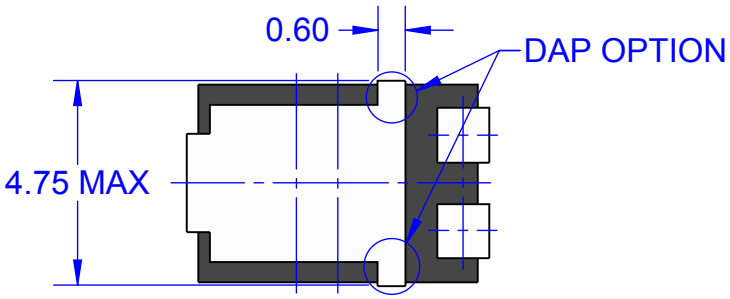

BOTTOM VIEW - DAP OPTION

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