

FES10D, FES10G, 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

MAXIMUM RATINGS

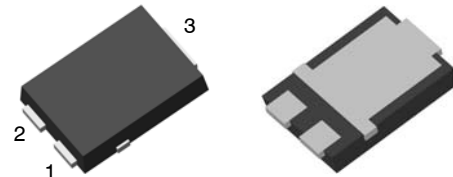
Parameter	Symbol	Value	Unit
Repetitive Peak Reverse Voltage FES10D FES10G FES10J	V_{RRM}	200 400 600	V
Average Forward Rectified Current	$I_{F(AV)}$	10	A
Peak Forward Surge Current: 8.3 ms Single Half Sine-Wave Superimposed on Rated Load	I_{FSM}	150	A
Operating Junction Temperature Range	T_J	-55 to +175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



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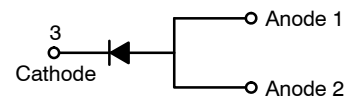


TO-277
3 LEAD
CASE 340BQ

MARKING DIAGRAM



A = Assembly Location
Y = Year
WW = Work Week
x = D, G or J



ORDERING INFORMATION

See detailed ordering and shipping information on page 6 of this data sheet.

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THERMAL CHARACTERISTICS (Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted) (Note 1)

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

1. Per JESD51-3 Recommended Thermal Test Board.

ELECTRICAL CHARACTERISTICS (Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted)

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

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.

2. Pulse test with $PW = 300\ \mu\text{s}$, 1% duty cycle

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TYPICAL CHARACTERISTICS

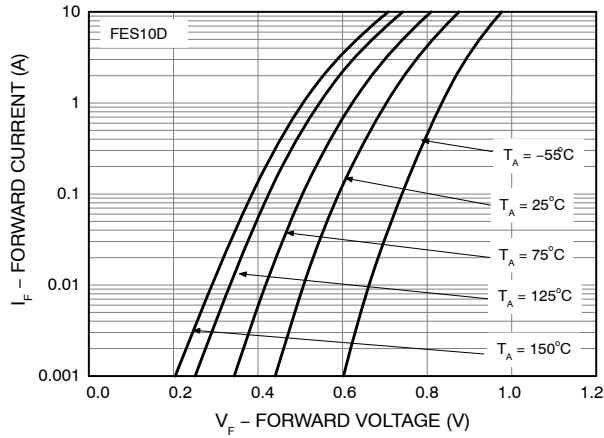


Fig 1. Typical Forward Characteristics for FES10D

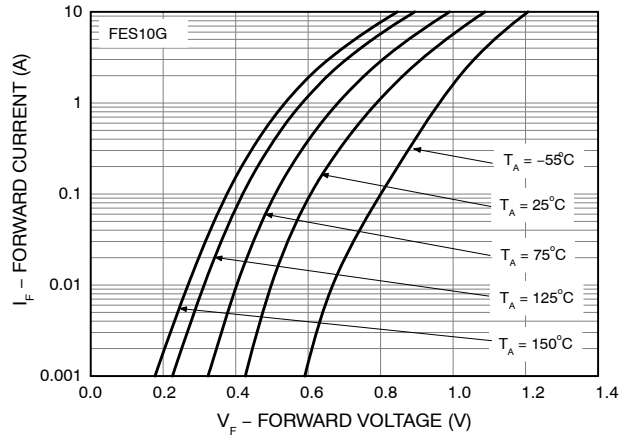


Fig 2. Typical Forward Characteristics for FES10G

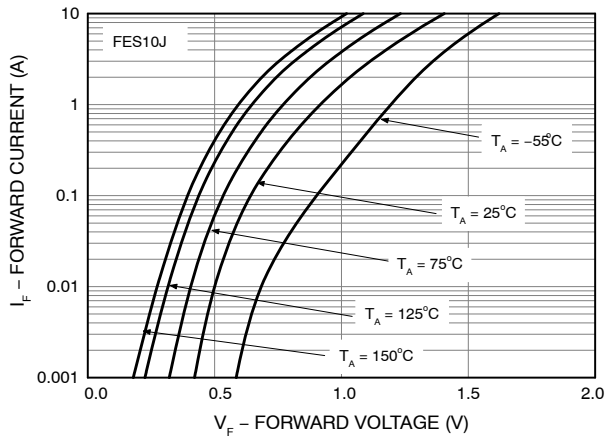


Fig 3. Typical Forward Characteristics for FES10J

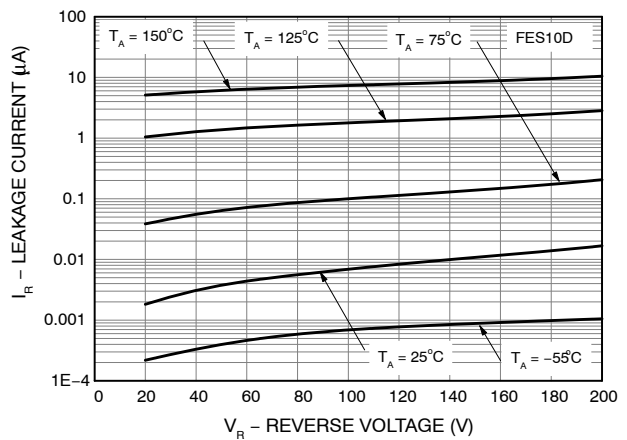


Fig 4. Typical Reverse Characteristics for FES10D

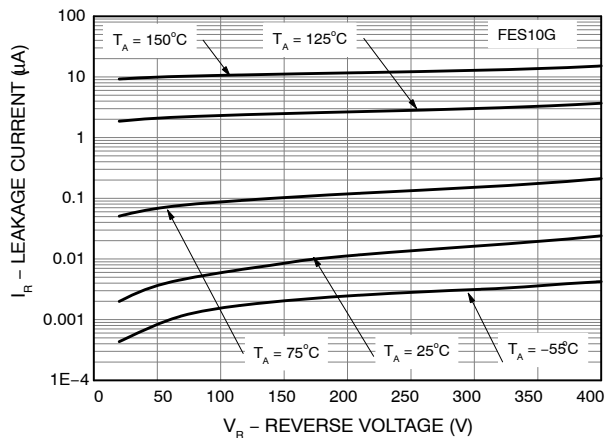


Fig 5. Typical Reverse Characteristics for FES10G

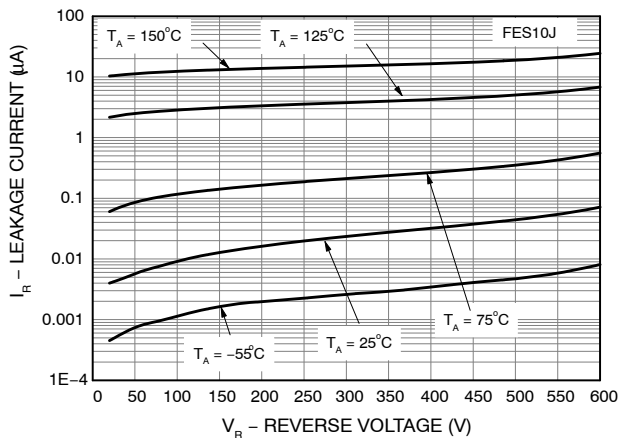


Fig 6. Typical Reverse Characteristics for FES10J

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TYPICAL CHARACTERISTICS

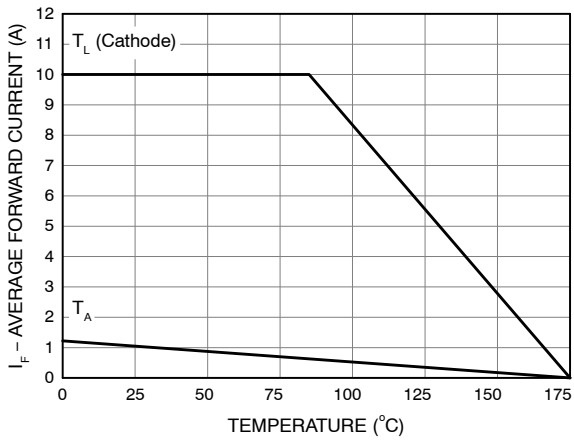


Fig 7. Forward Current Derating Curve

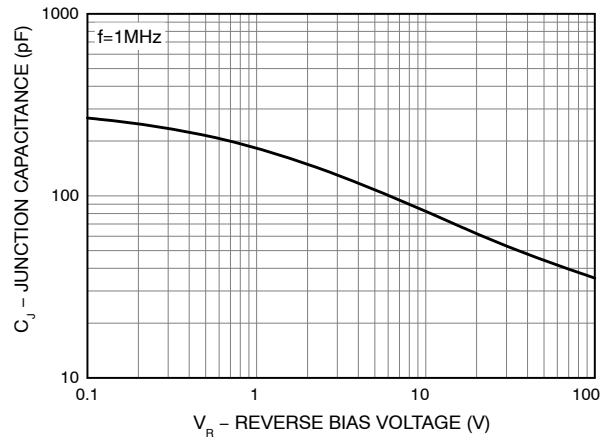
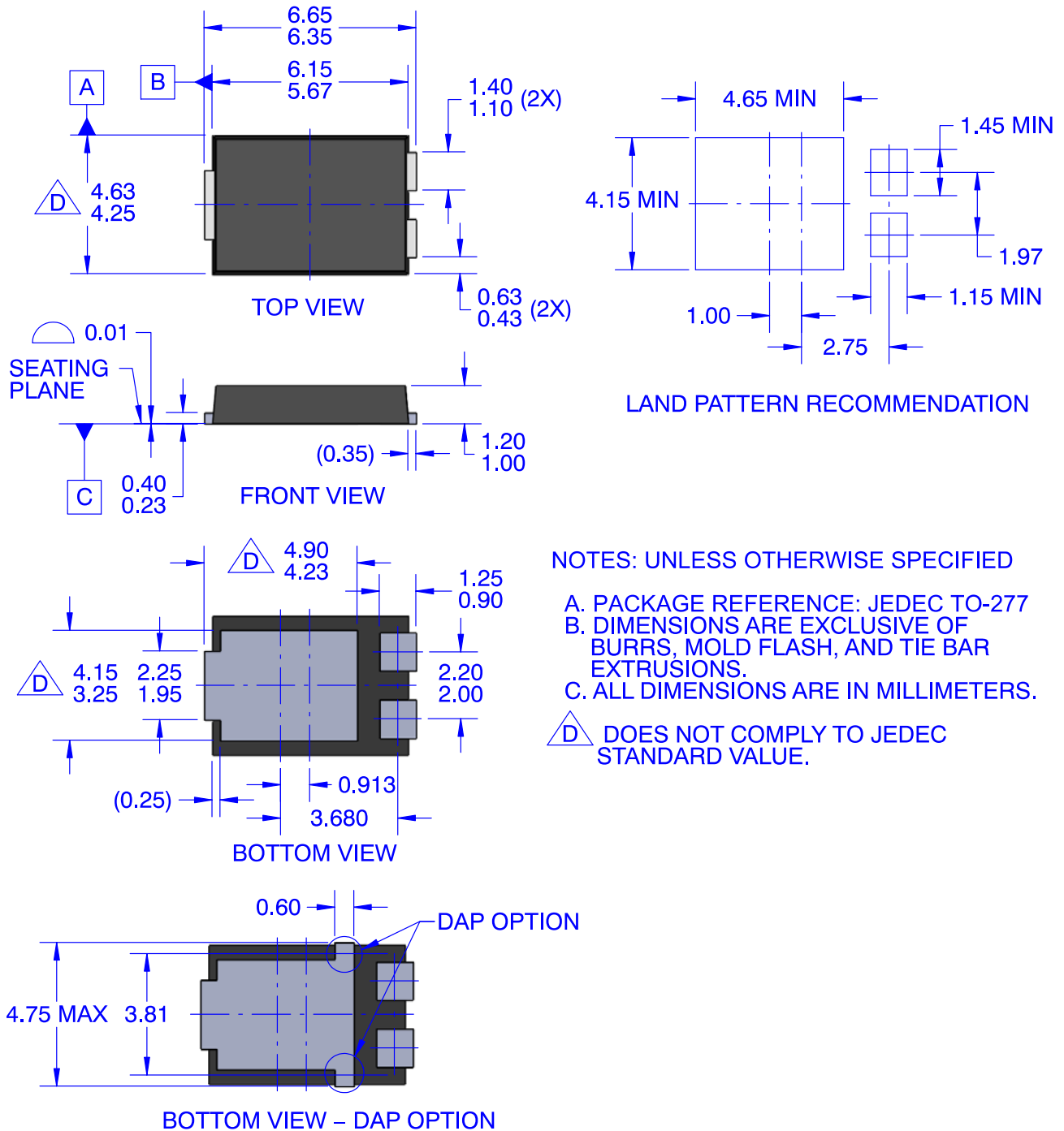


Fig 8. Typical Junction Capacitance

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PACKAGE DIMENSIONS

TO-277-3LD
CASE 340BQ
ISSUE O



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.

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ORDERING INFORMATION

Part Number	Top Mark	Package	Packing Method
FES10D	FES10D	TO-277 3L (with DAP Option only)	Tape & Reel
FES10G	FES10G	TO-277 3L (with DAP Option only)	Tape & Reel
FES10J	FES10J	TO-277 3L (with DAP Option only)	Tape & Reel

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