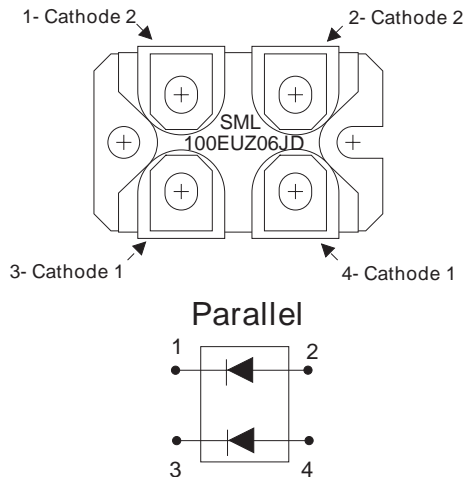


Ultrafast Recovery Diode 300 Volt, 100Amp



See package outline for mechanical data and more details

SOT-227 PACKAGE

Key Parameters

V_R	(max)	300V
V_F	(typ)	1.55V
I_F	(max)	2 X 100A
t_{rr}	(max)	55ns

TECHNOLOGY

The planar passivated and enhanced ultrafast recovery diode features a triple charge control action utilising Semelab's Graded Buffer Zone technology combined with low emitter efficiency and local lifetime control techniques.

BENEFITS

- Very fast recovery for low switching losses
- Ultra soft recovery with low EMI generation
- High dynamic ruggedness under all conditions
- Low temperature dependency
- Low on-state losses with positive temperature coefficient
- Stable blocking voltage and low leakage current
- Avalanche rated for high reliability circuit operation

APPLICATIONS

- Freewheeling Diode for IGBTs and MOSFETs
- Uninterruptible Power Supplies UPS
- Switch Mode Power Supplies SMPS
- Inverse and Clamping Diode
- Snubber Diode
- Fast Switching Rectification

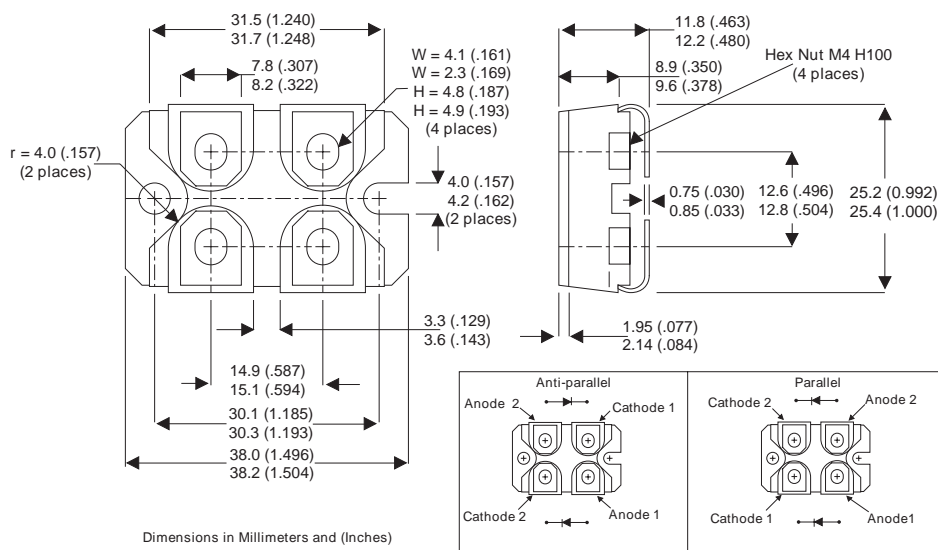
ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{RRM}	Peak Repetitive Reverse Voltage	300V
V_R	DC Reverse Blocking Voltage	300V
I_{FAV}	Average Forward Current @T _C = 85°C	100A
$I_{FSM(surge)}$	Repetitive Forward Current	250A
$I_{FS(surge)}$	Non-Repetitive Forward Current	1000A
P_D	Power Dissipation @T _C = 85°C	165W
W_{AVL}	Avalanche Energy(L = 40mH)	50mJ
T_J, T_{STG}	Operating & Storage Junction Temperature	-55 to 150°C

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ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit	
STATIC ELECTRICAL CHARACTERISTIC						
V _F	Forward Voltage Drop	I _F = 100A T _j = 25°C		1.55	2.25	V
		I _F = 100A T _j = 125°C		1.6		
		I _F = 50A T _j = 25°C		1.25		
I _R	Leakage Current	V _R = 300V T _j = 25°C		1	400	μA
		V _R = 300V T _j = 125°C		1	5	mA
C _T	Junction Capacitance	V _R = 200V T _j = 25°C		188		pF
DYNAMIC ELECTRICAL CHARACTERISTIC						
Q _{rr}	Reverse Recovery Charge	V _R = 200V I _F = 100A d _i / d _t = 600A/μs T _J = 25°C		1.2		μC
I _{rr}	Reverse Recovery Current			20		A
t _{rr}	Reverse Recovery Time			120		nsec
Q _{rr}	Reverse Recovery Charge	V _R = 200V I _F = 100A d _i / d _t = 600A/μs T _J = 125°C		2.34		μC
I _{rr}	Reverse Recovery Current			30		A
t _{rr}	Reverse Recovery Time			155		nsec
t _{rr}	Reverse Recovery Time	V _R = 50V I _F = 1A d _i / d _t = 100A/μs T _J = 25°C		55		nsec
THERMAL AND MECHANICAL CHARACTERISTICS						
R _{θjc}	Junction to Case Thermal Resistance			0.4		°C/W
T _L	Lead Temperature			300		°C
L _S	Stray Inductance		10			nH
Torque	Mounting Torque			1.1		N.m



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