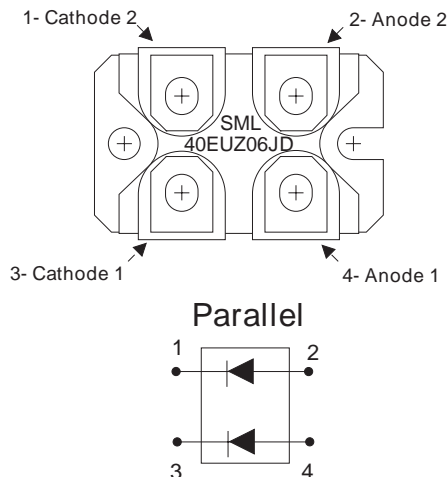


## Enhanced Ultrafast Recovery Diode 600 Volt, 2 x 40 Amp



See package outline for mechanical data and more details

### SOT-227 Package

#### Key Parameters

$V_R$	(max)	600V
$V_F$	(typ)	2.15V
$I_F$	(max)	2 x 40A
$t_{rr}$	(max)	40nS

#### 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

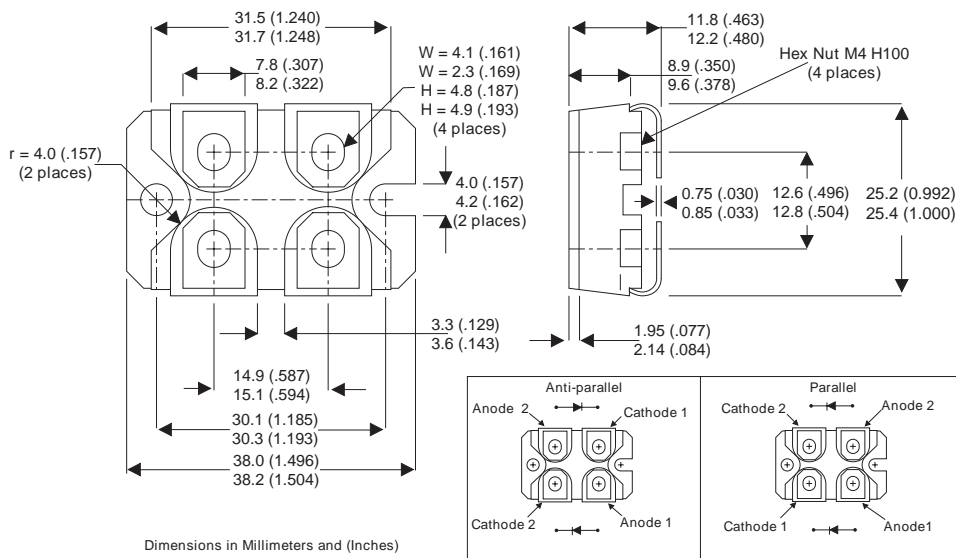
### ABSOLUTE MAXIMUM RATINGS (T<sub>case</sub> = 25°C unless otherwise stated)

$V_{RRM}$	Peak Repetitive Reverse Voltage	600V
$V_R$	DC Reverse Blocking Voltage	600V
$I_{FAV}$	Average Forward Current @T <sub>C</sub> = 85°C	40A
$I_{FSM(surge)}$	Repetitive Forward Current	100A
$I_{FS(surge)}$	Non-Repetitive Forward Current(10msec pulse)	400A
$P_D$	Power Dissipation @T <sub>C</sub> = 85°C	90W
$W_{AVL}$	Avalanche Energy(L=40mH)	30mJ
$T_J, T_{STG}$	Operating & Storage Junction Temperature	- 55 to 150°C

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## ELECTRICAL CHARACTERISTICS (T<sub>case</sub> = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
<b>STATIC ELECTRICAL CHARACTERISTIC</b>					
V <sub>F</sub> Forward Voltage Drop	I <sub>F</sub> = 40A T <sub>j</sub> = 25°C		2.15	2.5	V
	I <sub>F</sub> = 40A T <sub>j</sub> = 125°C		2.2		
	I <sub>F</sub> = 20A T <sub>j</sub> = 25°C		1.75		
I <sub>R</sub> Leakage Current	V <sub>R</sub> = 600V T <sub>j</sub> = 25°C		0.8	300	μA
	V <sub>R</sub> = 600V T <sub>j</sub> = 125°C		0.6	3	mA
C <sub>T</sub> Junction Capacitance	V <sub>R</sub> = 200V T <sub>j</sub> = 25°C		45		pF
<b>DYNAMIC ELECTRICAL CHARACTERISTIC</b>					
Q <sub>rr</sub> Reverse Recovery Charge	V <sub>R</sub> = 300V I <sub>F</sub> = 40A d <sub>i</sub> / d <sub>t</sub> = 800A/μs T <sub>J</sub> = 25°C		0.5		μC
I <sub>rr</sub> Reverse Recovery Current			22		A
t <sub>rr</sub> Reverse Recovery Time			50		nsec
Q <sub>rr</sub> Reverse Recovery Charge	V <sub>R</sub> = 300 V I <sub>F</sub> = 40A d <sub>i</sub> / d <sub>t</sub> = 800A/μs T <sub>J</sub> = 125°C		0.8		μC
I <sub>rr</sub> Reverse Recovery Current			30		A
t <sub>rr</sub> Reverse Recovery Time			54		nsec
t <sub>rr</sub> Reverse Recovery Time	V <sub>R</sub> = 50V I <sub>F</sub> = 1A d <sub>i</sub> / d <sub>t</sub> = 100A/μs T <sub>J</sub> = 25°C		40		nsec
<b>THERMAL AND MECHANICAL CHARACTERISTICS</b>					
R <sub>θjc</sub> Junction to Case Thermal Resistance				0.93	°C/W
TL Lead Temperature				300	°C
LS Stray Inductance			10		nH
Torque Mounting Torque				1.1	N.m



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