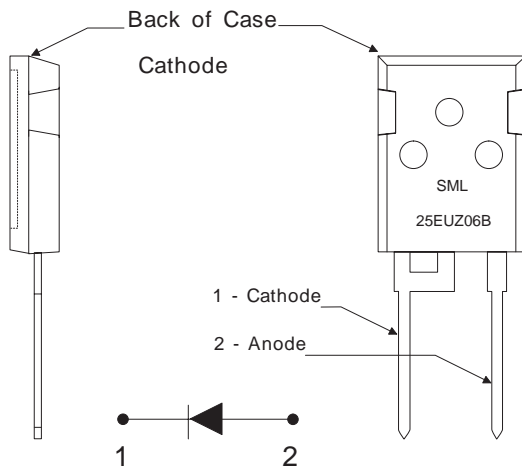


## Enhanced Ultrafast Recovery Diode 600 Volt, 25 Amp



See Package outline for mechanical data and more details

### TO247 Package

### Key Parameters

$V_R$	(max)	<b>600V</b>
$V_F$	(typ)	<b>2.2V</b>
$I_F$	(max)	<b>25A</b>
$t_{rr}$	(max)	<b>35ns</b>

### 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)

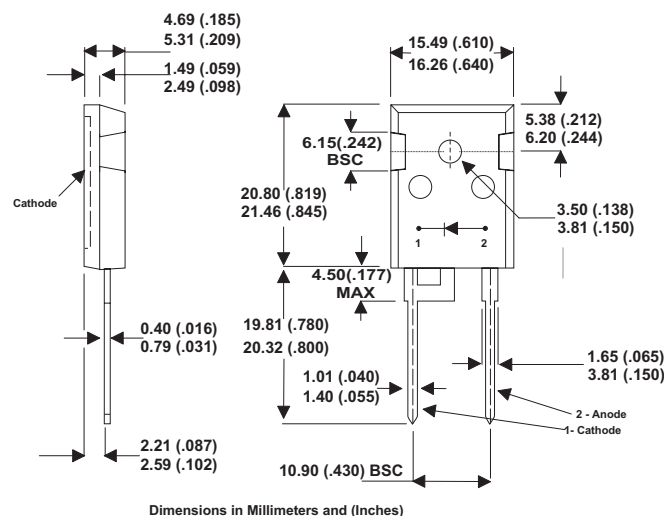
$V_{RRM}$	Peak Repetitive Reverse Voltage	600V
$V_R$	DC Reverse Blocking Voltage	600V
$I_{FAV}$	Average Forward Current @T <sub>C</sub> = 85°C	25A
$I_{FSM(surge)}$	Repetitive Forward Current	70A
$I_{FS(surge)}$	Non-Repetitive Forward Current	250A
$P_D$	Power Dissipation @T <sub>C</sub> = 85°C	60W
$W_{AVL}$	Avalanche Energy (L=40mH)	20mJ
$T_J, T_{STG}$	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> = 25A      T <sub>j</sub> = 25°C		2.2	2.5	V
		I <sub>F</sub> = 25A      T <sub>j</sub> = 125°C		2.3		
		I <sub>F</sub> = 15A      T <sub>j</sub> = 25°C		1.85		
I <sub>R</sub>	Leakage Current	V <sub>R</sub> = 600V      T <sub>j</sub> = 25°C		0.6	200	μA
		V <sub>R</sub> = 600V      T <sub>j</sub> = 125°C		0.4	2	mA
C <sub>T</sub>	Junction Capacitance	V <sub>R</sub> = 200V      T <sub>j</sub> = 25°C		22		pF
<b>DYNAMIC ELECTRICAL CHARACTERISTIC</b>						
Q <sub>rr</sub>	Reverse Recovery Charge	V <sub>R</sub> = 300V      I <sub>F</sub> = 25A d <sub>i</sub> / d <sub>t</sub> = 800A/μs      T <sub>J</sub> = 25°C		0.43		μC
I <sub>rr</sub>	Reverse Recovery Current			20		A
t <sub>rr</sub>	Reverse Recovery Time			43		nsec
Q <sub>rr</sub>	Reverse Recovery Charge	V <sub>R</sub> = 300V      I <sub>F</sub> = 25A d <sub>i</sub> / d <sub>t</sub> = 800A/μs      T <sub>J</sub> = 125°C		0.62		μC
I <sub>rr</sub>	Reverse Recovery Current			24		A
t <sub>rr</sub>	Reverse Recovery Time			52		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		35		nsec
<b>THERMAL AND MECHANICAL CHARACTERISTICS</b>						
R <sub>θjc</sub>	Junction to Case Thermal Resistance			1.4		°C/W
T <sub>L</sub>	Lead Temperature			300		°C
L <sub>S</sub>	Stray Inductance		10			nH
Torque	Mounting Torque			1.1		N.m

### TO-247 clip Package



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