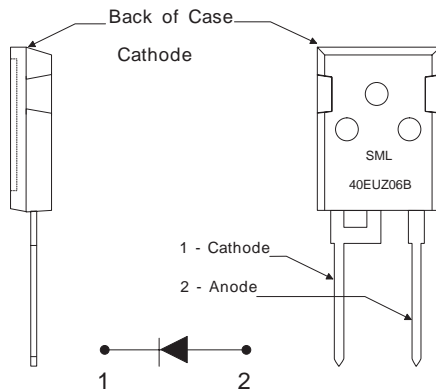


Enhanced Ultrafast Recovery Diode 600 Volt, 40 Amp



See Package outline for mechanical data and more details

TO247 Package

Key Parameters

V_R	(max)	600V
V_F	(typ)	2.15V
I_F	(max)	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 ($T_{case} = 25^\circ\text{C}$ unless otherwise stated)

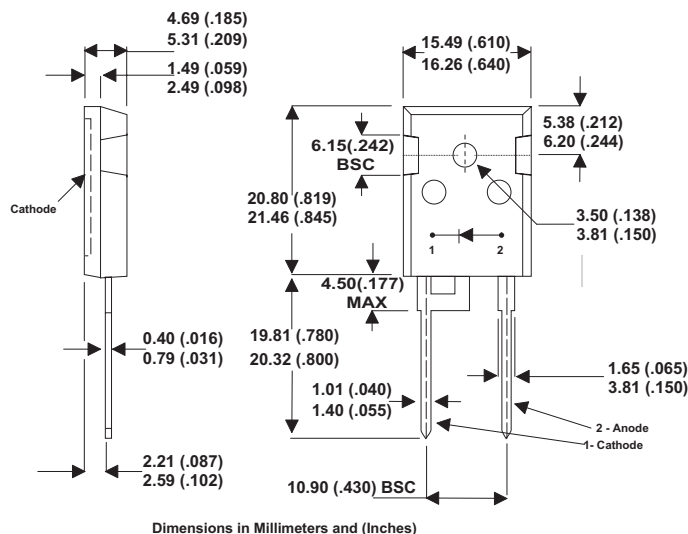
V_{RRM}	Peak Repetitive Reverse Voltage	600V
V_R	DC Reverse Blocking Voltage	600V
I_{FAV}	Average Forward Current @ $T_C = 85^\circ\text{C}$	40A
$I_{FSM(surge)}$	Repetitive Forward Current	100A
$I_{FS(surge)}$	Non-Repetitive Forward Current(10msec pulse)	400A
P_D	Power Dissipation @ $T_C = 85^\circ\text{C}$	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_{case} = 25°C unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL CHARACTERISTIC					
V _F Forward Voltage Drop	I _F = 40A T _j = 25°C		2.15	2.5	V
	I _F = 40A T _j = 125°C		2.2		
	I _F = 20A T _j = 25°C		1.75		
I _R Leakage Current	V _R = 600V T _j = 25°C		0.8	300	μA
	V _R = 600V T _j = 125°C		0.6	3	mA
C _T Junction Capacitance	V _R = 200V T _j = 25°C		45		pF
DYNAMIC ELECTRICAL CHARACTERISTIC					
Q _{rr} Reverse Recovery Charge	V _R = 300V I _F = 40A d _i / d _t = 800A/μs T _J = 25°C		0.5		μC
I _{rr} Reverse Recovery Current			22		A
t _{rr} Reverse Recovery Time			50		nsec
Q _{rr} Reverse Recovery Charge	V _R = 300 V I _F = 40A d _i / d _t = 800A/μs T _J = 125°C		0.8		μC
I _{rr} Reverse Recovery Current			30		A
t _{rr} Reverse Recovery Time			54		nsec
t _{rr} Reverse Recovery Time	V _R = 50V I _F = 1A d _i / d _t = 100A/μs T _J = 25°C		40		nsec
THERMAL AND MECHANICAL CHARACTERISTICS					
R _{θjc} 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

TO-247 clip Package



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