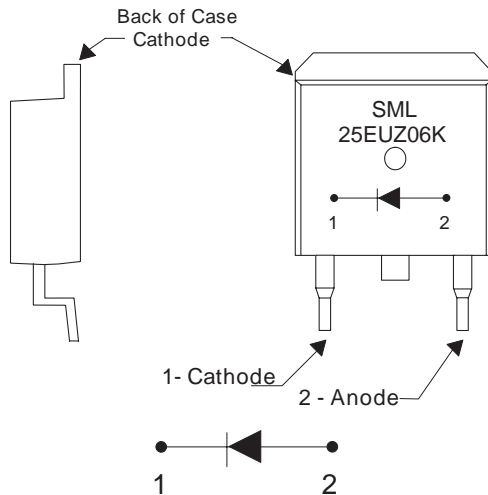


Enhanced Ultrafast Recovery Diode 600 Volt, 25 Amp



See package outline for mechanical data and more details

D² PAK Package

Key Parameters

V_R	(max)	600V
V_F	(typ)	2.2V
I_F	(max)	25A
t_{rr}	(max)	35ns

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 ($T_{case} = 25^\circ C$ unless otherwise stated)

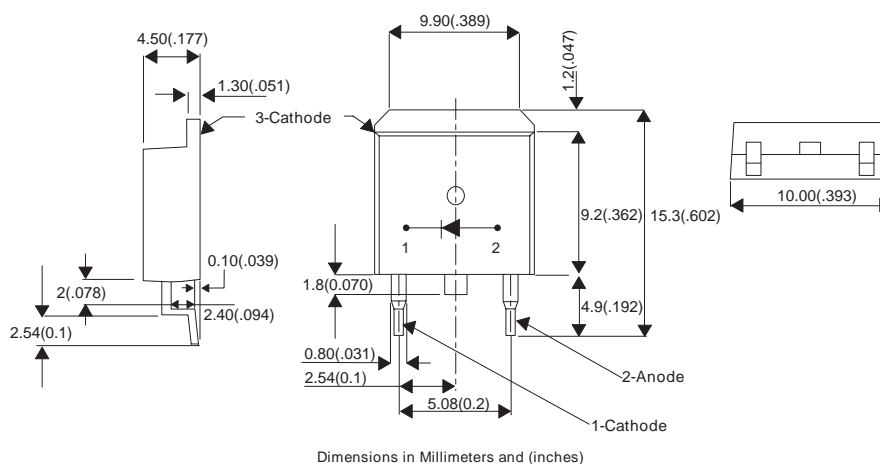
V_{RRM}	Peak Repetitive Reverse Voltage	600V
V_R	DC Reverse Blocking Voltage	600V
I_{FAV}	Average Forward Current @ $T_C = 85^\circ C$	25A
$I_{FSM(surge)}$	Repetitive Forward Current	70A
$I_{FS(surge)}$	Non-Repetitive Forward Current	250A
P_D	Power Dissipation @ $T_C = 85^\circ C$	60W
W_{AVL}	Avalanche Energy (L=40mH)	20mJ
T_J, T_{STG}	Operating & Storage Junction Temperature	-55 to 150°C

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ELECTRICAL CHARACTERISTICS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
STATIC ELECTRICAL CHARACTERISTIC					
V_F Forward Voltage Drop	$I_F = 25A$ $T_j = 25^{\circ}C$		2.2	2.5	V
	$I_F = 25A$ $T_j = 125^{\circ}C$		2.3		
	$I_F = 15A$ $T_j = 25^{\circ}C$		1.85		
I_R Leakage Current	$V_R = 600V$ $T_j = 25^{\circ}C$		0.6	200	μA
	$V_R = 600V$ $T_j = 125^{\circ}C$		0.4	2	mA
C_T Junction Capacitance	$V_R = 200V$ $T_j = 25^{\circ}C$		22		pF
DYNAMIC ELECTRICAL CHARACTERISTIC					
Q_{rr} Reverse Recovery Charge	$V_R = 300V$ $I_F = 25A$ $d_i / d_t = 800A/\mu s$ $T_J = 25^{\circ}C$		0.43		μC
I_{rr} Reverse Recovery Current			20		A
t_{rr} Reverse Recovery Time			43		nsec
Q_{rr} Reverse Recovery Charge	$V_R = 300V$ $I_F = 25A$ $d_i / d_t = 800A/\mu s$ $T_J = 125^{\circ}C$		0.62		μC
I_{rr} Reverse Recovery Current			24		A
t_{rr} Reverse Recovery Time			52		nsec
t_{rr} Reverse Recovery Time	$V_R = 50V$ $I_F = 1A$ $d_i / d_t = 100A/\mu s$ $T_J = 25^{\circ}C$		35		nsec
THERMAL AND MECHANICAL CHARACTERISTICS					
$R_{\theta jc}$ Junction to Case Thermal Resistance				1.4	$^{\circ}C/W$
T_L Lead Temperature				300	$^{\circ}C$
L_S Stray Inductance			10		nH
Torque Mounting Torque				1.1	N.m

D² PAK Package



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