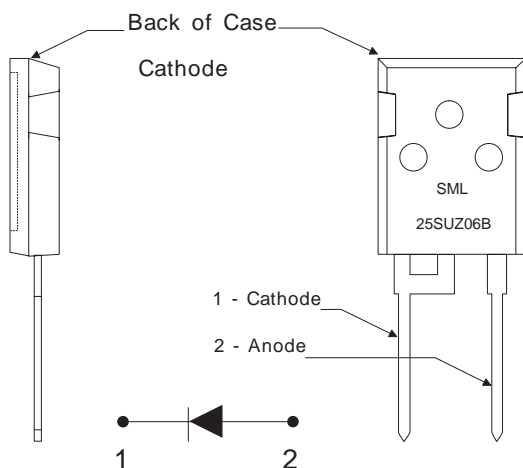


Ultrafast Recovery Diode 600 Volt, 25 Amp



See Package outline for mechanical data and more details

TO-247 PACKAGE

Key Parameters

V_R	(max)	600V
V_F	(typ)	1.8V
I_F	(max)	25A
t_{rr}	(max)	40ns

TECHNOLOGY

The planar passivated and standard 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	600V
V_R	DC Reverse Blocking Voltage	600V
I_{FAV}	Average Forward Current @ T _C = 85°C	25A
$I_{FSM(surge)}$	Repetitive Forward Current	70A
$I_{FS(surge)}$	Non-Repetitive Forward Current	250A
P_D	Power Dissipation @ T _C = 85°C	50W
W_{AVL}	Avalanche Energy	20mJ
T_J, T_{STG}	Operating & Storage Junction Temperature	-55 to 150°C

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL CHARACTERISTIC							
V _F	Forward Voltage Drop	I _F = 25A	T _j = 25°C		1.8	2.25	V
		I _F = 25A	T _j = 125°C		1.9		
		I _F = 15A	T _j = 25°C		1.6		
I _R	Leakage Current	V _R = 600V	T _j = 25°C		0.6	200	μA
		V _R = 600V	T _j = 125°C		0.4	2	mA
C _T	Junction Capacitance	V _R = 200V	T _j = 25°C		21		pF
DYNAMIC ELECTRICAL CHARACTERISTIC							
Q _{rr}	Reverse Recovery Charge	V _R = 300V	I _F = 25A d _i / d _t = 800A/μs		0.66		μC
I _{rr}	Reverse Recovery Current				24		A
t _{rr}	Reverse Recovery Time				56		nsec
Q _{rr}	Reverse Recovery Charge	V _R = 300V	I _F = 25A d _i / d _t = 800A/μs		0.95		μC
I _{rr}	Reverse Recovery Current				28		A
t _{rr}	Reverse Recovery Time				68		nsec
t _{rr}	Reverse Recovery Time	V _R = 50V	I _F = 1A		40		nsec
		d _i / d _t = 100A/μs	T _J = 25°C				
THERMAL AND MECHANICAL CHARACTERISTICS							
R _{θjc}	Junction to Case Thermal Resistance					1.4	°C/W
T _L	Lead Temperature					300	°C
L _S	Stray Inductance				10		nH
Torque	Mounting Torque					1.1	N.m

Technical drawing showing the dimensions of the cathode and anode assembly. The drawing includes a side view of the cathode on the left and a top view of the anode assembly on the right.

Cathode Dimensions (Left):

- Top width: 4.69 (.185)
- Top width: 5.31 (.209)
- Top width: 1.49 (.059)
- Top width: 2.49 (.098)
- Bottom width: 0.40 (.016)
- Bottom width: 0.79 (.031)
- Bottom width: 2.21 (.087)
- Bottom width: 2.59 (.102)

Anode Assembly Dimensions (Right):

- Top width: 15.49 (.610)
- Top width: 16.26 (.640)
- Top width: 5.38 (.212)
- Top width: 6.20 (.244)
- Top width: 6.15 (.242) BSC
- Top width: 4.50 (.177) MAX
- Top width: 19.81 (.780)
- Top width: 20.32 (.800)
- Top width: 1.01 (.040)
- Top width: 1.40 (.055)
- Top width: 3.50 (.138)
- Top width: 3.81 (.150)
- Top width: 1.65 (.065)
- Top width: 3.81 (.150)
- Top width: 10.90 (.430) BSC

Labels:

- Cathode
- 1 - Cathode
- 2 - Anode

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