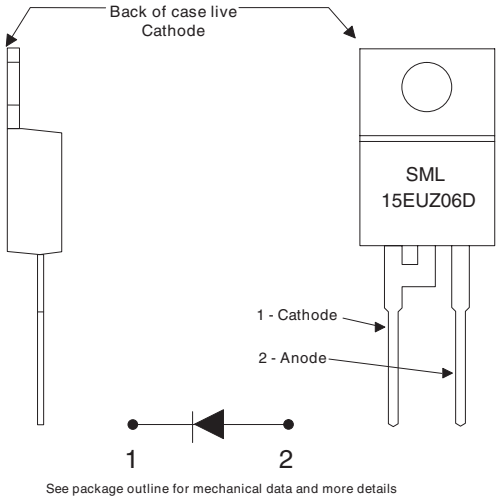
SML15EUZ06D

Enhanced Ultrafast Recovery Diode 600 Volt, 15 Amp



See package outline for mechanical data and more details

TO220 Package

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

Key Parameters

V_R	(max)	600V
V_F	(typ)	2.3V
I_F	(max)	15A
t_{rr}	(max)	30nS

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	15A
$I_{FSM(surge)}$	Repetitive Forward Current	40A
$I_{FS(surge)}$	Non-Repetitive Forward Current(10msec pulse)	150A
P_D	Power Dissipation @T_C = 85°C	40W
W_{AVL}	Avalanche Energy(L=40mH)	10mJ
T_J ,T_{STG}	Operating & Storage Junction Temperature	- 55 to 150°C

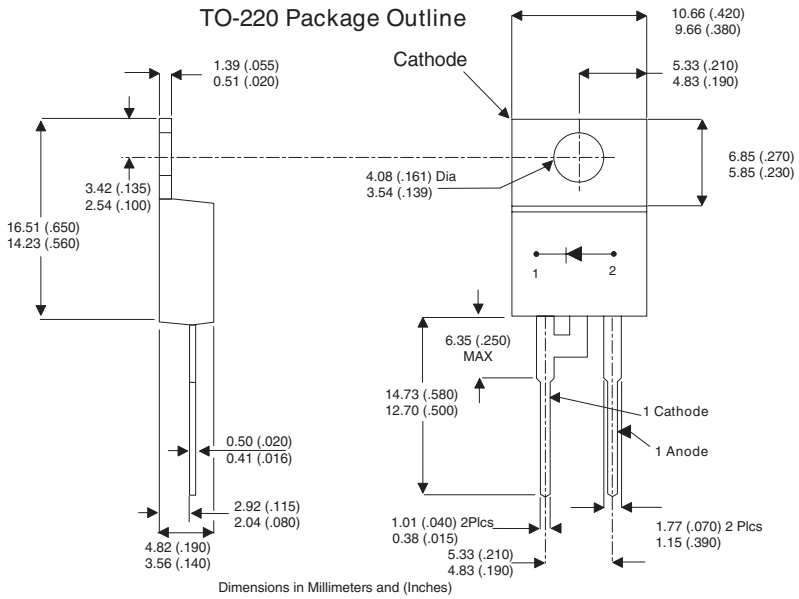
Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 2377
Issue 1

SML15EUZ06D

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 = 15A	T_j = 25°C		2.3	2.5	V
		I_F = 15A	T_j = 125°C		2.45		
		I_F = 5A	T_j = 25°C		1.6		
I_R	Leakage Current	V_R = 600V	T_j = 25°C		0.4	200	µA
		V_R = 600V	T_j = 125°C		0.2	2	mA
C_T	Junction Capacitance	V_R = 200V	T_j = 25°C		11		pF
DYNAMIC ELECTRICAL CHARACTERISTIC							
Q_{rr}	Reverse Recovery Charge	V_R = 300V	I_F = 15A		0.34		µC
I_{rr}	Reverse Recovery Current	d_i / d_t = 800A/µs	T_J = 25°C		17		A
t_{rr}	Reverse Recovery Time				40		nsec
Q_{rr}	Reverse Recovery Charge	V_R = 300 V	I_F =15A		0.49		µC
I_{rr}	Reverse Recovery Current	d_i / d_t = 800A/µs	T_J = 125°C		20		A
t_{rr}	Reverse Recovery Time				48		nsec
t_{rr}	Reverse Recovery Time	V_R = 50V	I_F = 1A		30		nsec
		d_i / d_t = 100A/µs	T_J = 25°C				
THERMAL AND MECHANICAL CHARACTERISTICS							
$R_{\theta jc}$	Junction to Case Thermal Resistance					2.2	°C/W
TL	Lead Temperature					300	°C
LS	Stray Inductance				10		nH
Torque	Mounting Torque					0.7	N.m



Semelab plc. Telephone +44(0)1455 556565. Fax +44(0)1455 552612.
E-mail: sales@semelab.co.uk Website: http://www.semelab.co.uk

Document Number 2377
Issue 1