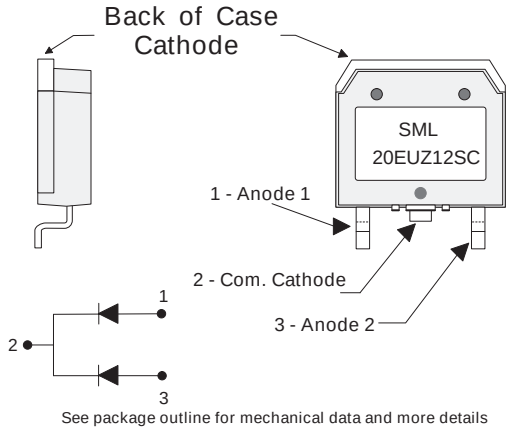
SML20EUZ12SC

Enhanced Ultrafast Recovery Diode 1200 Volt, 2 x 20 Amp



See package outline for mechanical data and more details

D3 PAK Package

Key Parameters

V_R	(max)	1200V
V_F	(typ)	3.2V
I_F	(max)	2 x 20A
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°C unless otherwise stated)

V_{RRM}	Peak Repetitive Reverse Voltage	1200V
V_R	DC Reverse Blocking Voltage	1200V
I_{FAV}	Average Forward Current @T_C = 85°C	20A
$I_{FSM(surge)}$	Repetitive Forward Current	50A
$I_{FS(surge)}$	Non-Repetitive Forward Current	200A
P_D	Power Dissipation @T_C = 85°C	70W
W_{AVL}	Avalanche Energy (L=40mH)	20mJ
T_J ,T_{STG}	Operating & Storage Junction Temperature	-55 to 150°C

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Document Number 2399
Issue 1

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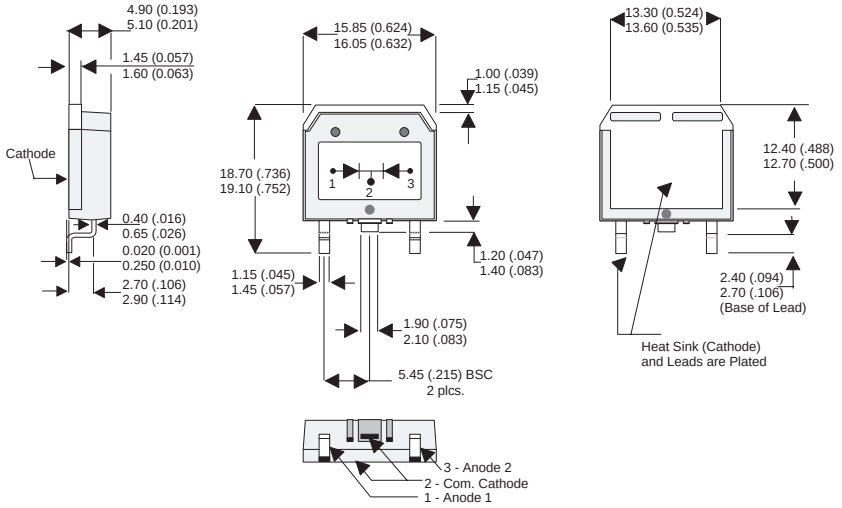
ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL CHARACTERISTIC							
V_F	Forward Voltage Drop	I_F = 20A	T_j = 25°C		3.2	3.5	V
		I_F = 20A	T_j = 125°C			3.7	
		I_F = 10A	T_j = 25°C		2.5		
I_R	Leakage Current	V_R = 1200V	T_j = 25°C		0.7	500	µA
		V_R = 1200V	T_j = 125°C		0.5	4	mA
C_T	Junction Capacitance	V_R = 200V	T_j = 25°C		18		pF
DYNAMIC ELECTRICAL CHARACTERISTIC							
Q_{rr}	Reverse Recovery Charge	V_R = 600V	I_F = 20A		0.63		µC
I_{rr}	Reverse Recovery Current	d_i / d_t = 1000A/µs	T_J = 25°C		28		A
t_{rr}	Reverse Recovery Time				45		nsec
Q_{rr}	Reverse Recovery Charge	V_R = 600V	I_F = 20A		0.91		µC
I_{rr}	Reverse Recovery Current	d_i / d_t = 1000A/µs	T_J = 125°C		34		A
t_{rr}	Reverse Recovery Time				54		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							
$R_{\theta jc}$	Junction to Case Thermal Resistance					1.4	°C/W
T_L	Lead Temperature					300	°C
L_S	Stray Inductance				10		nH

D³PAK Package



Dimensions in mm (inches)

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