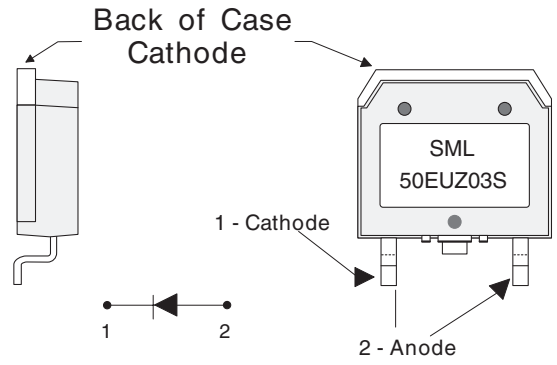
SML50EUZ03S

Ultrafast Recovery Diode
300 Volt, 50Amp



See package outline for mechanical data and more details

D^3 PAK Package

Key Parameters

V_R	(max)	300V
V_F	(typ)	1.7V
I_F	(max)	50A
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	300V
V_R	DC Reverse Blocking Voltage	300V
I_{FAV}	Average Forward Current @T_C = 85°C	50A
$I_{FSM(surge)}$	Repetitive Forward Current	125A
$I_{FS(surge)}$	Non-Repetitive Forward Current	500A
P_D	Power Dissipation @T_C = 85°C	90W
W_{AVL}	Avalanche Energy	30mJ
T_J ,T_{STG}	Operating & Storage Junction Temperature	-55 to 150°C

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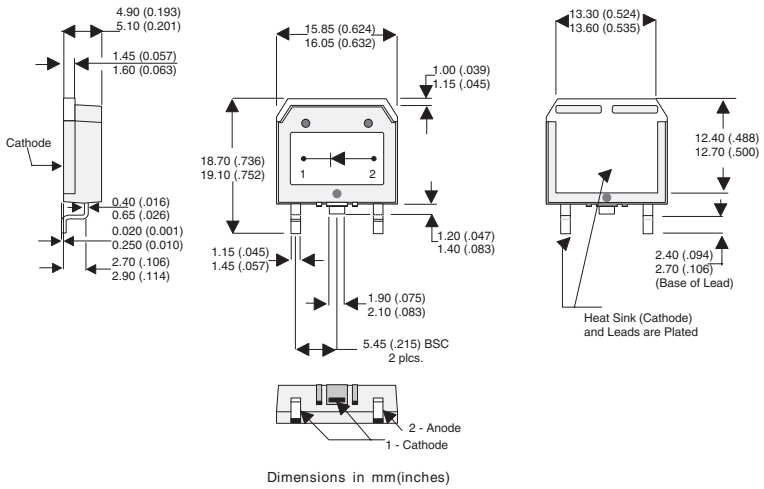
ELECTRICAL CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
STATIC ELECTRICAL CHARACTERISTIC							
V_F *	Forward Voltage Drop	I_F = 50A	T_j = 25°C		1.7	2.25	V
		I_F = 50A	T_j = 125°C		1.8		
		I_F = 25A	T_j = 25°C		1.4		
I_R	Leakage Current	V_R = 300V	T_j = 25°C		0.75	300	µA
		V_R = 300V	T_j = 125°C		0.5	3	mA
C_T	Junction Capacitance	V_R = 200V	T_j = 25°C		74		pF
DYNAMIC ELECTRICAL CHARACTERISTIC							
Q_{rr}	Reverse Recovery Charge	V_R = 200V	I_F = 50A		0.44		µC
I_{rr}	Reverse Recovery Current	d_i / d_t = 600A/µs	T_J = 25°C		16		A
t_{rr}	Reverse Recovery Time				55		nsec
Q_{rr}	Reverse Recovery Charge	V_R = 200V	I_F = 50A		0.71		µC
I_{rr}	Reverse Recovery Current	d_i / d_t = 600A/µs	T_J = 125°C		22		A
t_{rr}	Reverse Recovery Time				66		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					0.93	°C/W
T_L	Lead Temperature					300	°C
L_S	Stray Inductance				10		nH

D³PAK Package



Dimensions in mm(inches)

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