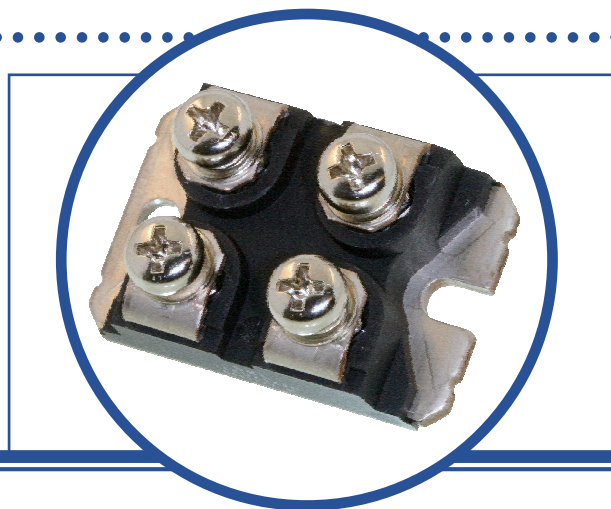


# ENHANCED ULTRAFAST RECOVERY DIODE

## SML75EUZ14JD

- Very fast recovery for low switching losses.
- Ultra soft recovery for 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 include: Freewheel Diode for IGBTs and MOSFETS, Snubber Diode, Fast Switching Rectification, Switch Mode Power Supplies (SMPS) and Uninterruptable Power Supplies (UPS).



### ABSOLUTE MAXIMUM RATINGS (T<sub>C</sub> = 25°C unless otherwise stated)

V <sub>RRM</sub>	Peak Repetitive Reverse Voltage		1400V
V <sub>R</sub>	DC Reverse Blocking Voltage		1400V
I <sub>FAV</sub>	Average Forward Current		75A
I <sub>FSM(surge)</sub>	Repetitive Forward Current		175A
I <sub>FSM(surge)</sub>	Non-Repetitive Forward Current		750A
P <sub>D</sub>	Power Dissipation	T <sub>C</sub> = 25°C	312.5W
		Derate Above 25°C	2.5W/°C
W <sub>AVL</sub>	Avalanche Energy		50mJ
T <sub>J</sub>	Junction Temperature Range		-55 to +150°C
T <sub>stg</sub>	Storage Temperature Range		-55 to +150°C

### THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
R <sub>θJC</sub>	Thermal Resistance, Junction To Case			0.4	°C/W

### MECHANICAL CHARACTERISTICS

Symbols	Parameters	Min.	Typ.	Max.	Units
T <sub>L</sub>	Lead Temperature			300	°C
L <sub>S</sub>	Stray Inductance		10		nH
Torque	Mounting Torque			1.1	N·m

Semelab Limited 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.



# ENHANCED ULTRAFAST RECOVERY DIODE SML75EUZ14JD

## ELECTRICAL CHARACTERISTICS ( $T_C = 25^\circ\text{C}$ unless otherwise stated)

Symbols	Parameters	Test Conditions	Min.	Typ	Max.	Units
$V_F$	Forward Voltage Drop	$I_F = 75\text{A}$ $T_J = 25^\circ\text{C}$			4	V
		$I_F = 75\text{A}$ $T_J = 125^\circ\text{C}$			4.9	
		$I_F = 50\text{A}$ $T_J = 25^\circ\text{C}$		3		
$I_R$	Leakage Current	$V_R = 1350\text{V}$ $T_J = 25^\circ\text{C}$		0.2	1.0	mA
		$V_R = 1350\text{V}$ $T_J = 125^\circ\text{C}$		2	7.5	

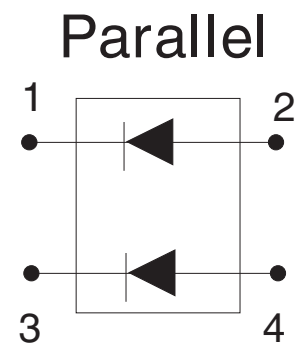
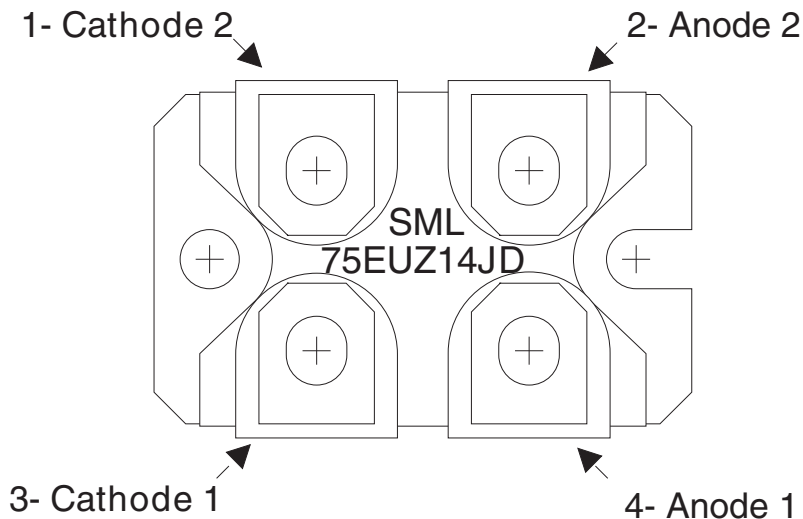
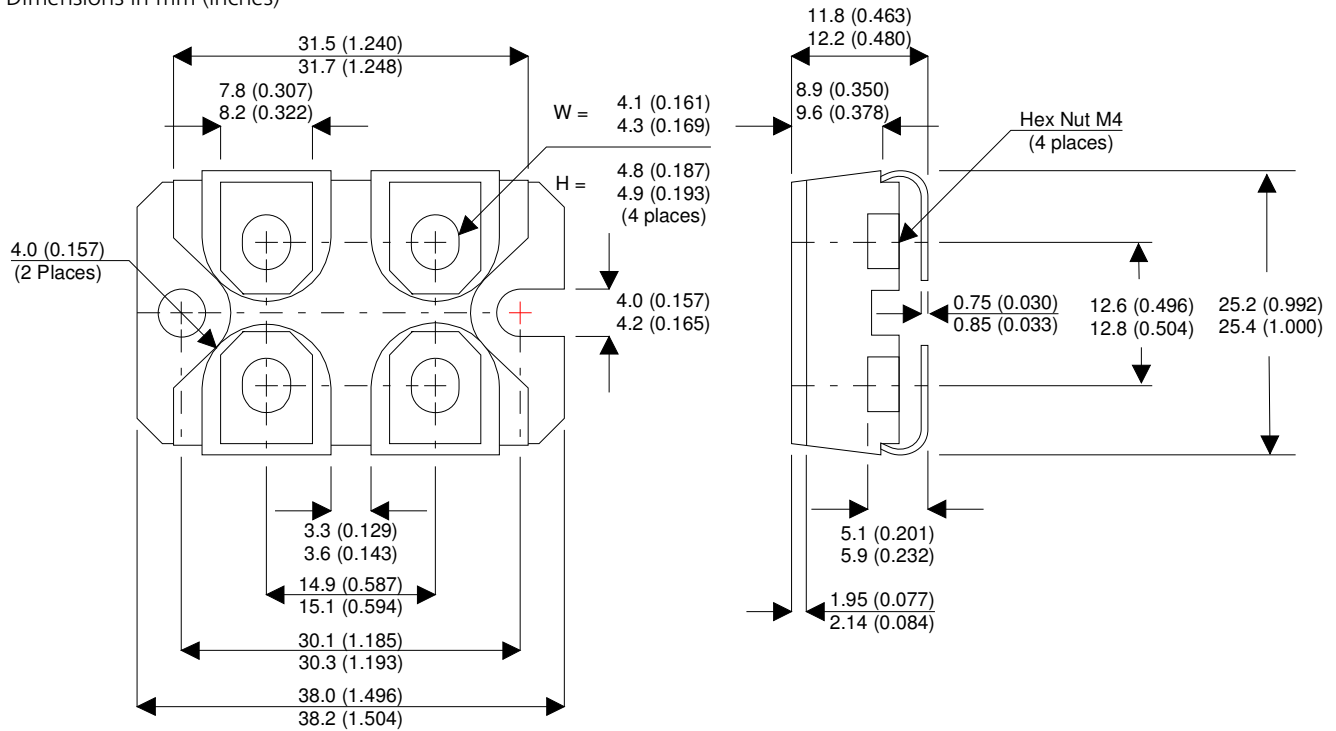
## DYNAMIC CHARACTERISTICS

$C_T$	Input Capacitance	$V_R = 200\text{V}$ $T_J = 25^\circ\text{C}$		84		pF
$Q_{RR}$	Reverse Recovery Charge	$V_R = 600\text{V}$ $I_F = 75\text{A}$		1.56		$\mu\text{C}$
$I_{RR}$	Reverse Recovery Current			45		A
$t_{RR}$	Reverse Recovery Time	$di/dt = 1000\text{A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$		70		ns
$Q_{RR}$	Reverse Recovery Charge	$V_R = 600\text{V}$ $I_F = 75\text{A}$		3.1		$\mu\text{C}$
$I_{RR}$	Reverse Recovery Current			68		A
$t_{RR}$	Reverse Recovery Time	$di/dt = 1000\text{A}/\mu\text{s}$ $T_J = 125^\circ\text{C}$		91		ns
$t_{RR}$	Reverse Recovery Time	$V_R = 50\text{V}$ $I_F = 1.0\text{A}$ $di/dt = 100\text{A}/\mu\text{s}$ $T_J = 25^\circ\text{C}$		55		ns

# ENHANCED ULTRAFAST RECOVERY DIODE SML75EUZ14JD

## MECHANICAL DATA

Dimensions in mm (inches)



## SOT-227 PACKAGE