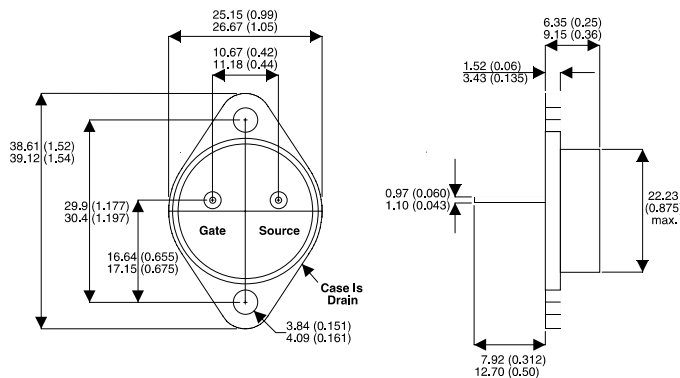
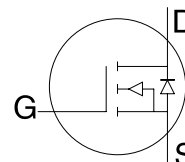


TO3 Package Outline.
Dimensions in mm (Inches)



POWER MOS IV™
N-CHANNEL
ENHANCEMENT MODE
HIGH VOLTAGE
POWER MOSFETS



MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Parameter	SML				Unit
	901R1AN	1001R1AN	901R3AN	1001R3AN	
V_{DSS} Drain - Source Voltage	900	1000	900	1000	V
I_D Continuous Drain Current	9.5		8.5		A
I_{DM} Pulsed Drain Current ¹	38		34		A
V_{GS} Gate - Source Voltage	±30				V
P_D Total Power Dissipation @ $T_{case} = 25^{\circ}C$ Derate above $25^{\circ}C$	230				W
T_J, T_{STJ} Operating and Storage Junction Temperature Range	-55 to 150				°C

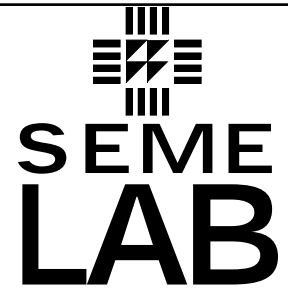
STATIC ELECTRICAL RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

Characteristic / Test Conditions / Part Number		Min.	Typ.	Max.	Unit
BV_{DSS}	Drain - Source Breakdown Voltage ($V_{GS} = 0V, I_D = 250\mu A$)	SML1001R1AN / SML1001R3AN	1000		V
		SML901R1AN / SML901R3AN	900		
I_{DSS}	Zero Gate Voltage Drain Current ($V_{GS} = 0V, V_{DS} = V_{DSS}$) ($V_{GS} = 0V, V_{DS} = 0.8V_{DSS}, T_C = 125^{\circ}C$)			250 1000	μA
I_{GSS}	Gate - Source Leakage Current ($V_{GS} = \pm 30V, V_{DS} = 0V$)			±100	nA
$I_{D(ON)}$	On State Drain Current ² ($V_{DS} > I_{D(ON)} \times R_{DS(ON)} \text{ Max}, V_{GS} = 10V$)	SML1001R1AN / SML901R1AN	9.5		A
		SML1001R1AN / SML901R3AN	8.5		
$V_{GS(TH)}$	Gate Threshold Voltage		2	4	V
$R_{DS(ON)}$	Static Drain - Source On State Resistance ² ($V_{GS} = 10V, I_D = 0.5 I_D [\text{Cont.}]$)	SML1001R1AN / SML901R1AN		1.1	Ω
		SML1001R3AN / SML901R3AN		1.3	

1) Repetitive Rating: Pulse Width limited by maximum junction temperature.

2) Pulse Test: Pulse Width < 380 μ S, Duty Cycle < 2%

SML1001R1AN 1000V 9.5A 1.10Ω
SML901R1AN 900V 9.5A 1.10Ω
SML1001R3AN 1000V 8.5A 1.30Ω
SML901R3AN 900V 8.5A 1.30Ω



DYNAMIC CHARACTERISTICS

	Characteristic	Test Conditions.	Min.	Typ.	Max.	Unit
C_{ISS}	Input capacitance	$V_{GS} = 0V$		2460	2950	pF
C_{OSS}	Output capacitance	$V_{DS} = 25V$		360	500	
C_{RSS}	Reverse transfer capacitance	$f = 1MHz$		105	160	
Q_g	Total Gate Charge ³	$V_{GS} = 10V$		90	130	nC
Q_{gs}	Gate - Source Charge	$I_D = I_D [Cont.]$		9.3	14	
Q_{gd}	Gate - Drain ("Miller") Charge	$V_{DD} = 0.5 V_{DSS}$		47	70	
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = 0.5 V_{DSS}$		15	30	ns
t_r	Rise Time	$I_D = I_D [Cont.]$		16	32	
$t_{d(off)}$	Turn-off Delay Time	$V_{GS} = 15V$		64	95	
t_f	Fall Time	$R_G = 1.8\Omega$		24	48	

SOURCE - DRAIN DIODE RATINGS AND CHARACTERISTICS

	Characteristic / Test Conditions.	Part Number	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current (Body Diode)	SML1001R1AN / SML901R1AN			9.5	A
		SML901R3AN / SML901R3AN			8.5	
I_{SM}	Pulsed Source Current ¹ (Body Diode)	SML1001R1AN / SML901R1AN			38	A
		SML1001R3AN / SML901R3AN			34	
V_{SD}	Diode Forward Voltage ² ($V_{GS} = 0V, I_S = -I_D [Cont.]$)				1.3	V
t_{rr}	Reverse Recovery Time ($I_S = -I_D [Cont.], di_S / dt = 100A/\mu s$)		320	636	1200	ns
Q_{rr}	Reverse Recovery Charge		2.2	4.5	9	μC

SAFE OPERATING AREA CHARACTERISTICS

	Characteristic / Test Conditions / Part Number	Min.	Typ.	Max.	Unit
SOA1	Safe Operating Area $V_{DS} = 0.4 V_{DSS}, I_{DS} = P_D / 0.4 V_{DSS}, t = 1 \text{ Sec}$	230			W
SOA2	Safe Operating Area $I_{DS} = I_{DS} [Cont.], V_{DS} = P_D / I_D [Cont.], t = 1 \text{ Sec}$	230			
I_{LM}	Inductive Current Clamped	SML1001R1AN / SML901R1AN	38		A
		SML1001R3AN / SML901R3AN	34		

THERMAL CHARACTERISTICS ($T_{case} = 25^\circ C$ unless otherwise stated)

	Characteristic / Test Conditions.	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Junction to Case			0.53	$^\circ C/W$
$R_{\theta JA}$	Junction to Ambient			30	$^\circ C/W$
T_L	Max. Lead Temperature for Soldering Conditions: 0.065" from Case for 10 sec.			300	$^\circ C$

- 1) Repetitive Rating: Pulse Width limited by maximum junction temperature.
- 2) Pulse Test: Pulse Width < 380 μs , Duty Cycle < 2%
- 3) See MIL-STD-750 Method 3471