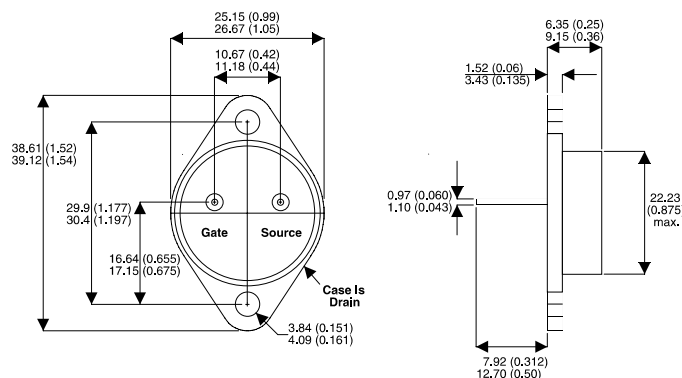


SML1001R1AN	1000V	9.5A	1.10Ω
SML901R1AN	900V	9.5A	1.10Ω
SML1001R3AN	1000V	8.5A	1.30Ω
SML901R3AN	900V	8.5A	1.30Ω

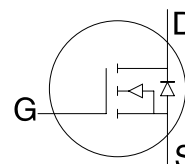
TO3 Package Outline.

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°C Derate above 25°C	230				W
T _J , T _{STJ}	Operating and Storage Junction Temperature Range	–55 to 150				°C

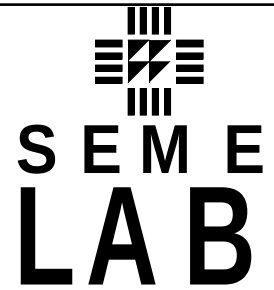
STATIC ELECTRICAL RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)

	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 $< 380\mu S$, 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 $V_{DS} = 0.4 V_{DSS}$, $I_{DS} = P_D / 0.4 V_{DSS}$, $t = 1$ Sec	230			W
SOA2	Safe Operating Area $I_{DS} = I_{DS} [Cont.]$, $V_{DS} = P_D / I_D [Cont.]$, $t = 1$ 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 $< 380\mu s$, Duty Cycle $< 2\%$

3) See MIL-STD-750 Method 3471