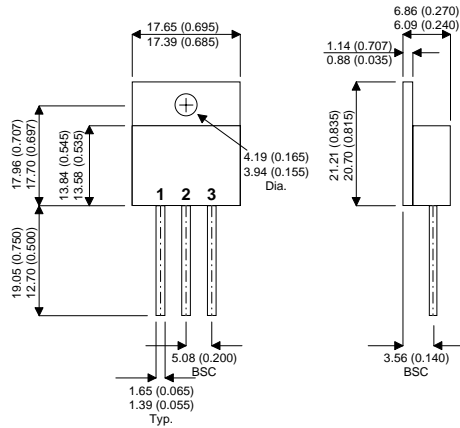


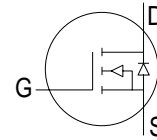
TO-258 Package Outline.
Dimensions in mm (Inches)



Pin 1 – Drain Pin 2 – Source Pin 3 – Gate

4TH GENERATION MOSFET

N-CHANNEL ENHANCEMENT MODE HIGH VOLTAGE POWER MOSFETS



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

Parameter	SML		Unit
	901RHN	1001RHN	
V_{DSS} Drain – Source Voltage	900	1000	V
I_D Continuous Drain Current	10		A
I_{DM} Pulsed Drain Current ¹	40		A
V_{GS} Gate – Source Voltage	±30		V
P_D Total Power Dissipation @ $T_{case} = 25^{\circ}C$	250		W
Derate above $25^{\circ}C$	2		W/ $^{\circ}C$
T_J, T_{STJ} Operating and Storage Junction Temperature Range	-55 to +150 $^{\circ}C$		$^{\circ}C$
T_L Lead Temperature (0.063" from Case for 10 Sec.)	300		$^{\circ}C$

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	$V_{GS} = 0V$ $I_D = 250\mu A$	SML1001RHN 1000			V
		SML901RHN 900			
I_{DSS} Zero Gate Voltage Drain Current ($V_{GS} = 0V$)	$V_{DS} = V_{DSS}$			250	μA
	$V_{DS} = 0.8V_{DSS}$ $T_C = 125^{\circ}C$			1000	
I_{GSS} Gate – Source Leakage Current	$V_{GS} = \pm 30V$ $V_{DS} = 0V$			±100	nA
$I_{D(ON)}$ On State Drain Current ²	$V_{DS} > I_{D(ON)} \times R_{DS(ON)}^{Max}$ $V_{GS} = 10V$	10			A
$V_{GS(TH)}$ Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 1.0mA$	2		4	V
$R_{DS(ON)}$ Static Drain – Source On State Resistance ²	$V_{GS} = 10V, I_D = 0.5 I_D [Cont.]$			1.00	Ω

1) Repetitive Rating: Pulse Width limited by maximum junction temperature.
2) Pulse Test: Pulse Width < 380 μ S, Duty Cycle < 2%

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)				10	A
I_{SM}	Pulsed Source Current ¹ (Body Diode)				40	A
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	250			W
SOA2	Safe Operating Area $I_{DS} = I_{DS} [Cont.]$, $V_{DS} = P_D / I_D [Cont.]$, $t = 1$ Sec	250			
I_{LM}	Inductive Current Clamped	40			A

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

	Characteristic / Test Conditions.	Min.	Typ.	Max.	Unit
$R_{\theta JC}$	Junction to Case			0.50	$^\circ C/W$
	Junction to Ambient			40	$^\circ C/W$

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