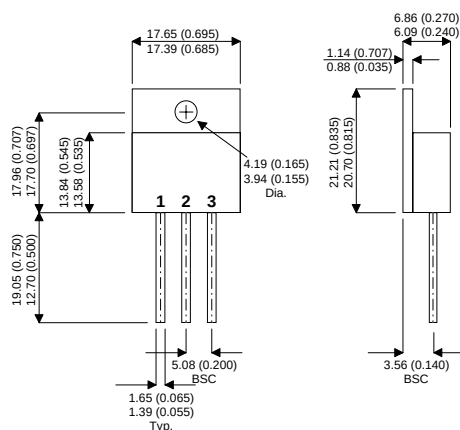


TO-258 Package Outline.

Dimensions in mm (Inches)



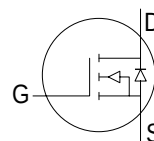
Pin 1 – Drain

Pin 2 – Source

Pin 3 – Gate

4TH GENERATION MOSFET

N-CHANNEL ENHANCEMENT MODE HIGH VOLTAGE POWER MOSFETS



MAXIMUM RATINGS (T_{case} = 25°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°C	250		W
	Derate above 25°C	2		W/°C
T _J , T _{STJ}	Operating and Storage Junction Temperature Range	–55 to +150°C		°C
T _L	Lead Tempeature (0.063" from Case for 10 Sec.)	300		

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

	Characteristic / Test Conditions / Part Number			Min.	Typ.	Max.	Unit
BV _{DSS}	Drain – Source Breakdown Voltage	V _{GS} = 0V	SML1001RHN	1000			V
		I _D = 250μA	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°C				1000	
I _{GSS}	Gate – Source Leakage Current	V _{GS} = ±30V V _{DS} = 0V				±100	nA
I _{D(ON)}	On State Drain Current ²	V _{DS} > I _{D(ON)} × 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 $< 380 \mu\text{s}$, 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 $V_{DS} = 0.4 V_{DSS}$, $I_{DS} = P_D / 0.4 V_{DSS}$, $t = 1 \text{ Sec}$	250			W
SOA2	Safe Operating Area $I_{DS} = I_{DS} [Cont.]$, $V_{DS} = P_D / I_D [Cont.]$, $t = 1 \text{ Sec}$	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