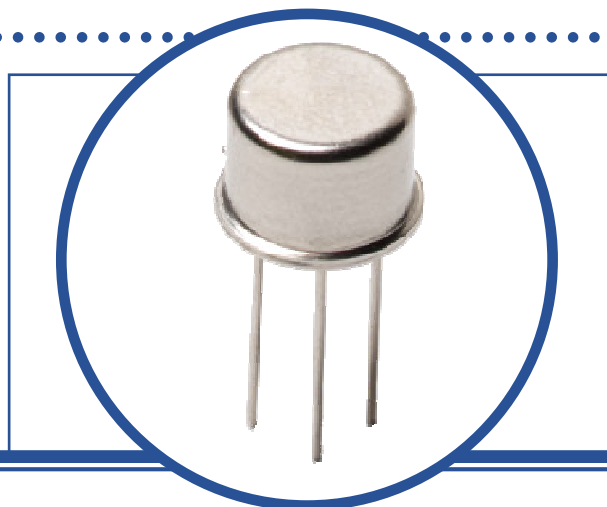


N-CHANNEL POWER MOSFET

SML0505FN

- Low $R_{DS(on)}$
- Hermetic TO-39 Metal package.
- Fast Switching



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise stated)

V_{DS}	Drain-Source Voltage	50V
I_D	Drain Current – Continuous $T_C = 25^\circ\text{C}$	16A
I_{DM}	Drain Current – Pulsed	150A
V_{GS}	Gate – Source Voltage	$\pm 20\text{V}$
P_D	Total Power Dissipation at $T_C = 25^\circ\text{C}$ Derate Above 25°C	25W 0.17W/ $^\circ\text{C}$
T_J	Junction Temperature Range	-55 to $+150^\circ\text{C}$
T_{stg}	Storage Temperature Range	-55 to $+150^\circ\text{C}$

THERMAL PROPERTIES

Symbols	Parameters	Min.	Typ.	Max.	Units
$R_{\theta JC}$	Thermal Resistance, Junction To Case			5.8	$^\circ\text{C/W}$

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.

N-CHANNEL POWER MOSFET SML0505FN

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

Symbols	Parameters	Test Conditions	Min.	Typ.	Max.	Units
BV_{DS}	Drain-Source Breakdown Voltage	$V_{GS} = 0$ $I_D = 250\mu\text{A}$	50	60		V
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}$ $I_D = 250\mu\text{A}$	2.0		4.0	
I_{GSS}	Gate-Source Leakage Current	$V_{GS} = \pm 20\text{V}$ $V_{DS} = 0\text{V}$			± 100	nA
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 40\text{V}$ $V_{GS} = 0$			25	μA
		$V_{DS} = 40\text{V}$ $T_C = 125^\circ\text{C}$			250	
$R_{DS(on)}^{(1)}$	Static Drain-Source On-State Resistance	$V_{GS} = 10\text{V}$ $I_D = 16\text{A}$			50	m Ω
$g_{fs}^{(1)}$	Forward Transconductance	$V_{DS} = 15\text{V}$ $I_D = 16\text{A}$	6			S

⁽¹⁾ Pulse test: $t_p \leq 300\mu\text{s}$, $\delta \leq 2\%$

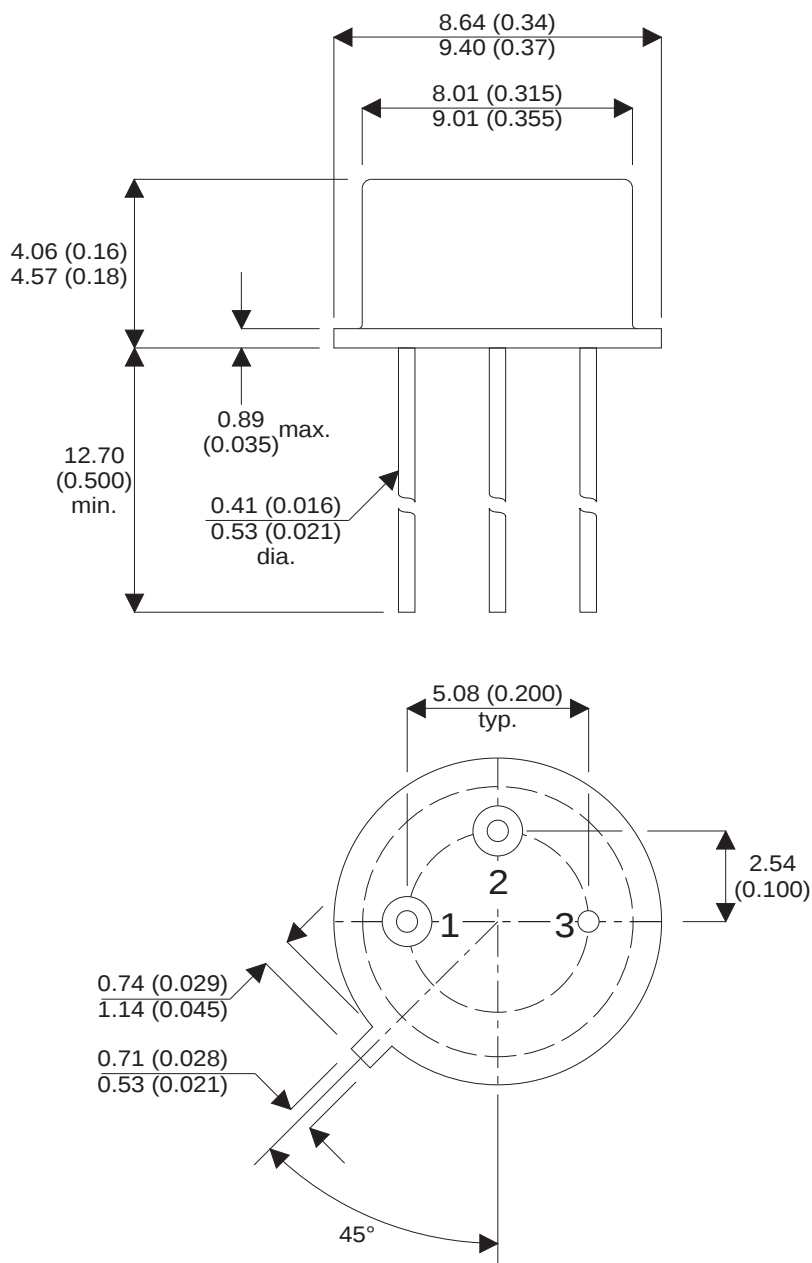
DYNAMIC CHARACTERISTICS

C_{iss}	Input Capacitance	$V_{GS} = 0$ $V_{DS} = 25\text{V}$ $f = 1.0\text{MHz}$		1500		pF
C_{oss}	Output Capacitance			53		
C_{rss}	Reverse Transfer Capacitance			750		
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 30\text{V}$ $I_D = 16\text{A}$ $R_G = 5\Omega$			23	ns
t_r	Rise Time				130	
$t_{d(off)}$	Turn-Off Delay Time				81	
t_f	Fall Time				79	

N-CHANNEL POWER MOSFET SML0505FN

MECHANICAL DATA

Dimensions in mm (inches)



TO-39 (TO-205AF) METAL PACKAGE Underside View

Pin 1 - Source

Pin 2 - Gate

Pin 3/Case - Drain