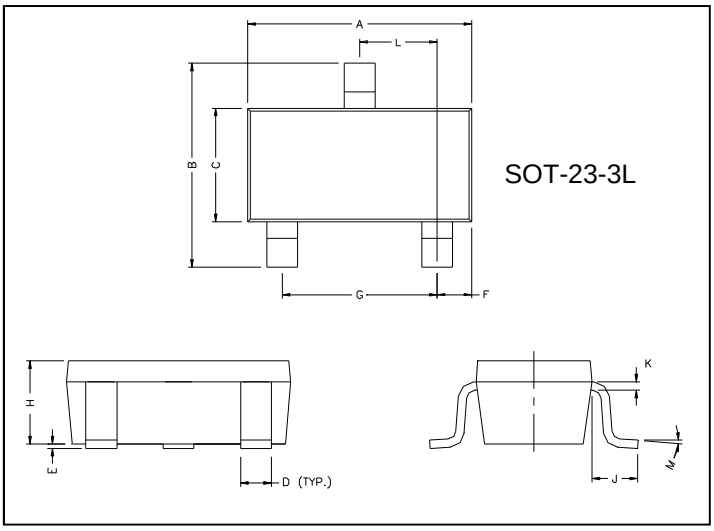
20V N-Channel Enhancement Mode MOSFET

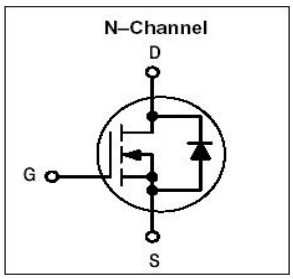
VDS= 20V
RDS(ON), Vgs@4.5V, Ids@5.0A < 31mΩ
RDS(ON), Vgs@2.5V, Ids@4.5A < 37mΩ
RDS(ON), Vgs@1.8V, Ids@3.9A < 85mΩ

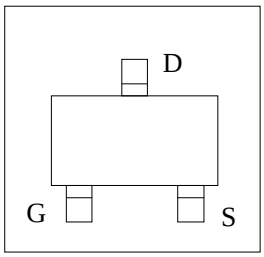
Features

Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance

Package Dimensions







REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90 REF.	
B	2.65	2.95	H	1.00	1.30
C	1.50	1.70	K	0.10	0.20
D	0.35	0.50	J	0.40	-
E	0	0.10	L	0.85	1.15
F	0.45	0.55	M	0°	10°

Maximum Ratings and Thermal Characteristics (TA = 25oC unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current		I_D	4.9	A
Pulsed Drain Current		I_{DM}	15	
Maximum Power Dissipation	TA = 25°C	P_D	0.75	W
	TA = 75°C		0.48	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted)		$R_{\theta JA}$	140	°C/W

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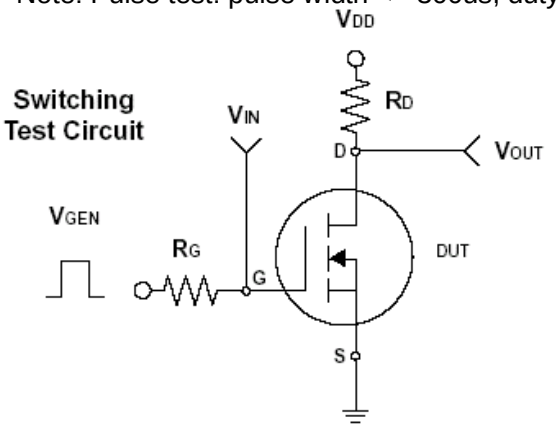
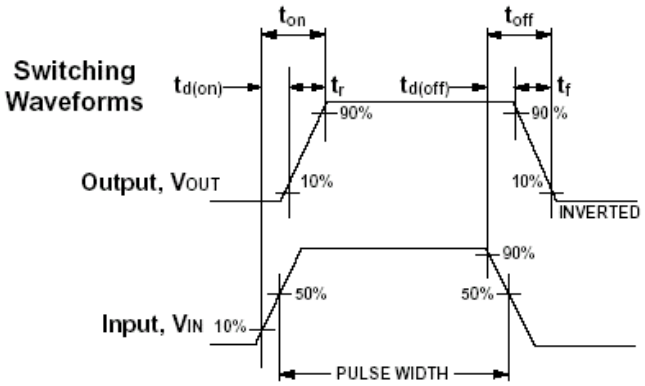
ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min.	Typ.	Miax.	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	20			V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 5.0A		21.0	31.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 2.5V, I_D = 4.5A		24.0	37.0	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 1.8V, I_D = 4.0A		50.0	85.0	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	0.4		1	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 20V, V_{GS} = 0V			1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ± 8V, V_{DS} = 0V			± 100	nA
Forward Transconductance	g_{fs}	V_{DS} = 15V, I_D = 5.0A		40	__	S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 10V, I_D = 5.0A V_{GS} = 4.5V		11.2	14	nC
Gate-Source Charge	Q_{gs}			1.4		
Gate-Drain Charge	Q_{gd}			2.2		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10V, RL=10Ω I_D = 1A, V_{GEN} = 4.5V R_G = 6Ω		15	25	ns
Turn-On Rise Time	t_r			40	60	
Turn-Off Delay Time	$t_{d(off)}$			48	70	
Turn-Off Fall Time	t_f			31	45	
Input Capacitance	C_{iss}	V_{DS} = 8V, V_{GS} = 0V f = 1.0 MHz		500		pF
Output Capacitance	C_{oss}			300		
Reverse Transfer Capacitance	C_{rss}			140		
Source-Drain Diode						
Max. Diode Forward Current	I_S				1.7	A
Diode Forward Voltage	V_{SD}	I_S = 1.8A, V_{GS} = 0V			1.2	V

Note: Pulse test: pulse width <= 300us, duty cycle<= 2%





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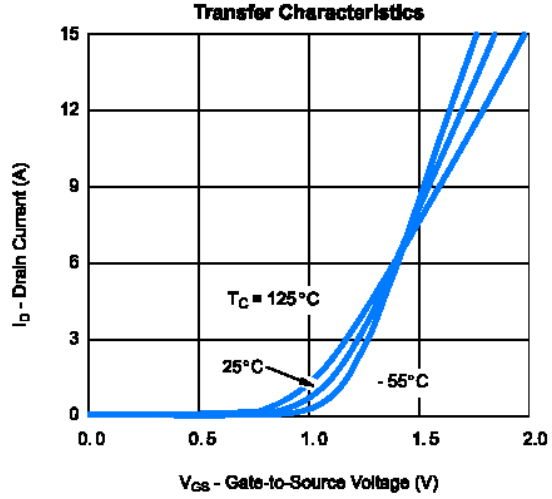
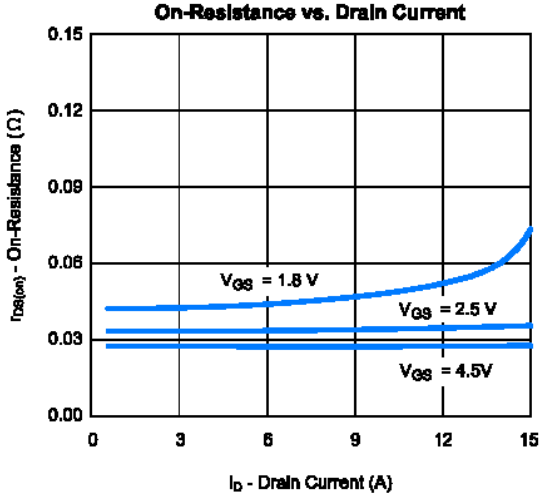
Typical Characteristics (T_J =25℃ Noted)

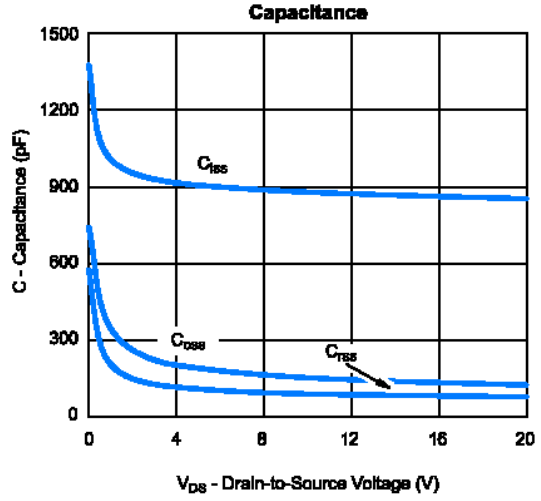
Transfer Characteristics



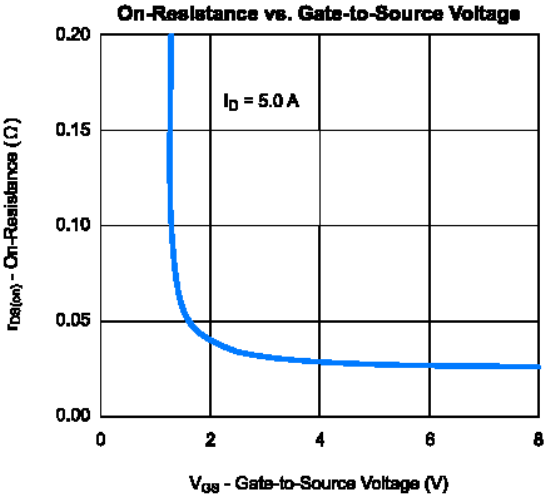
On-Resistance vs. Drain Current



Capacitance



On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage