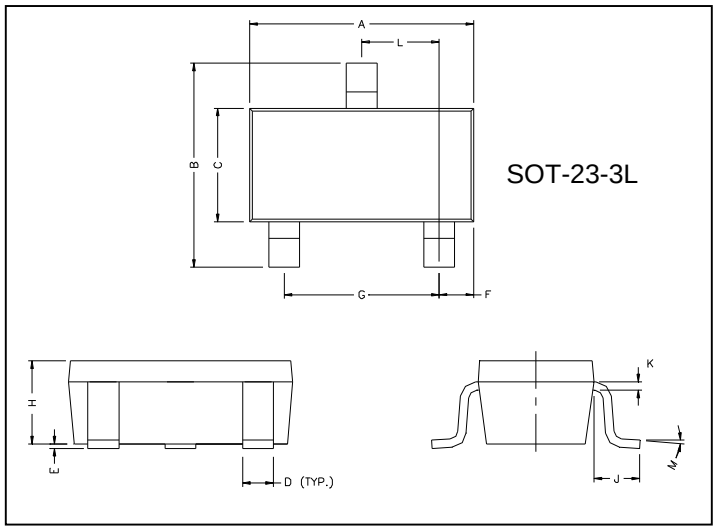
30V N-Channel Enhancement Mode MOSFET

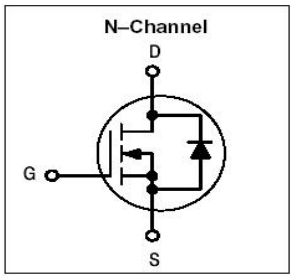
VDS= 30V
RDS(ON), Vgs@10V, Ids@5.8A < 28mΩ
RDS(ON), Vgs@4.5V, Ids@5.0A < 33mΩ
RDS(ON), Vgs@2.5V, Ids@4.0A < 52mΩ

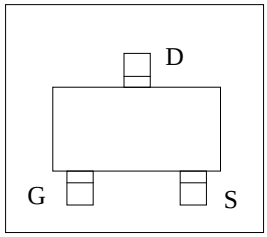
Features

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}	30	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current		I_D	5.8	A
Pulsed Drain Current		I_{DM}	30	
Maximum Power Dissipation	TA = 25°C	P_D	1.4	W
	TA = 75°C		1	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted)		$R_{\theta JA}$	145	°C/W

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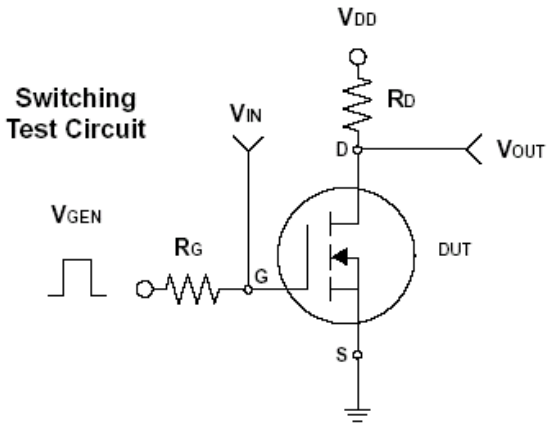
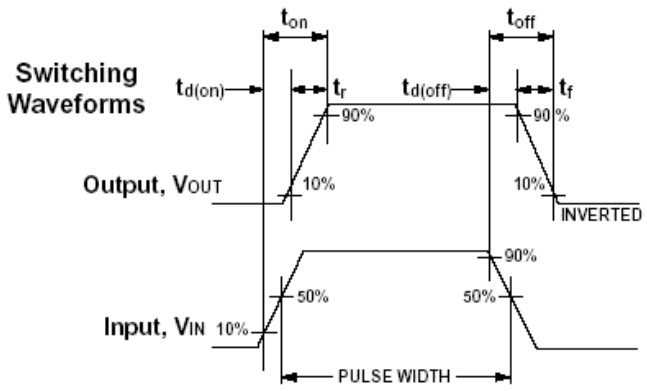
ELECTRICAL CHARACTERISTICS (TA = 25oC unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Miax.	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	30			V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 5.8A		22.0	28.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D =5A		27.0	33.0	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 2.5V, I_D =4A		43.0	52.0	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	0.7		1.4	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ± 12V, V_{DS} = 0V			±100	nA
Forward Transconductance	g_{fs}	V_{DS} = 5V, I_D = 5A	10	15	__	S
Gate Resistance	Rg	F=1.0MHz	6	7	7.5	Ω
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 15V, I_D = 5.8A V_{GS} = 4.5V		11	14	nC
Gate-Source Charge	Q_{gs}			1.6		
Gate-Drain Charge	Q_{gd}			2.8		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15V, RL=2.7Ω I_D = 1A, V_{GEN} = 10V R_G = 3Ω		7	11	ns
Turn-On Rise Time	t_r			15	20	
Turn-Off Delay Time	$t_{d(off)}$			38	50	
Turn-Off Fall Time	t_f			3	10	
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0V f = 1.0 MHz		340		pF
Output Capacitance	C_{oss}			115		
Reverse Transfer Capacitance	C_{rss}			33		
Source-Drain Diode						
Max. Diode Forward Current	I_S				1.6	A
Diode Forward Voltage	V_{SD}	I_S = 1.6A, V_{GS} = 0V			1.2	V

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





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Characteristics Curve

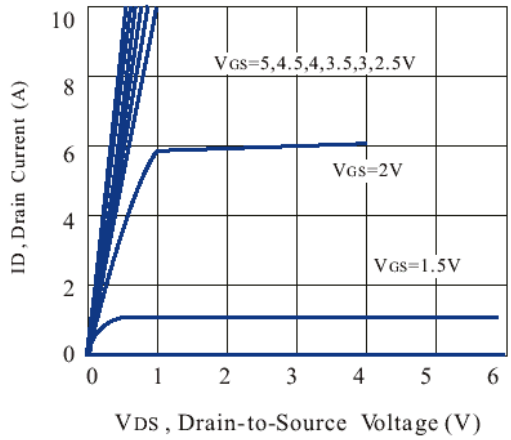

Figure 1. Output Characteristics

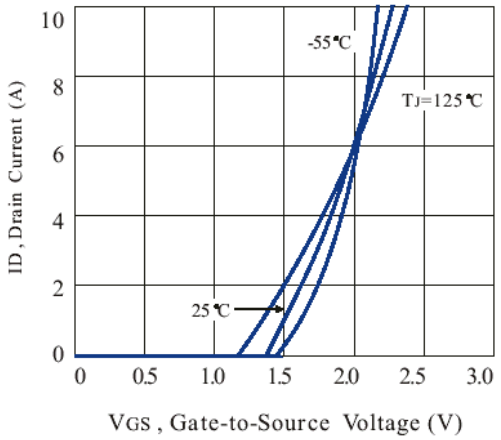

Figure 2. Transfer Characteristics

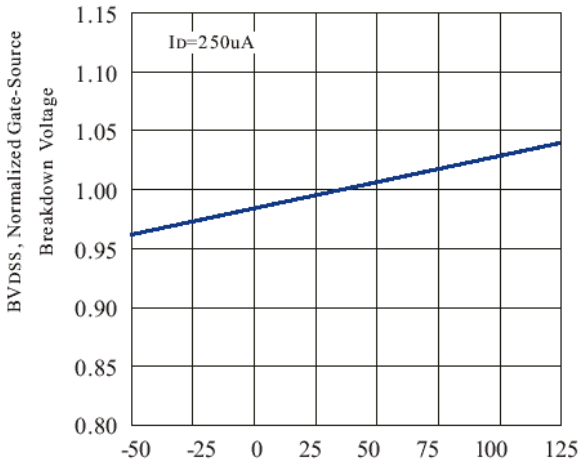

Figure 3. Breakdown Voltage Variation with Temperature

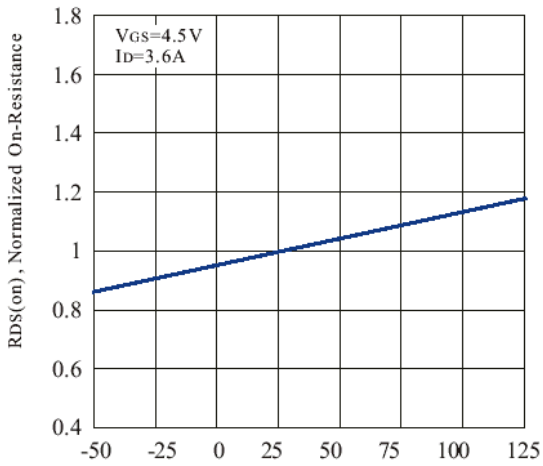

Figure 4. On-Resistance Variation with Temperatur

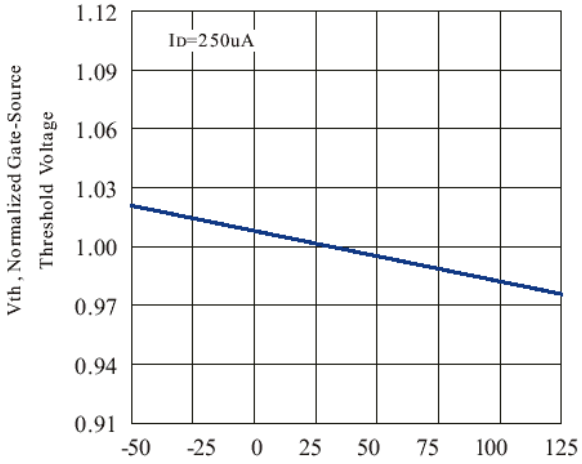

Figure 5. Gate Threshold Variation with Temperature

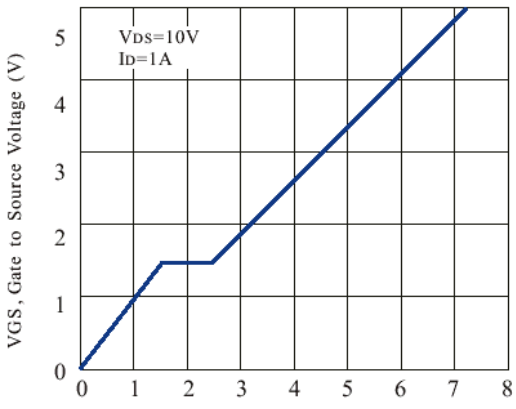

Figure 6. Gate Charge