

## 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**

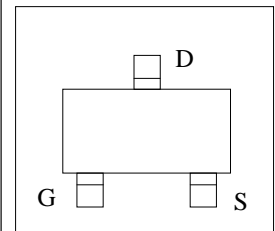
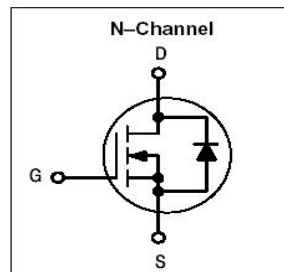
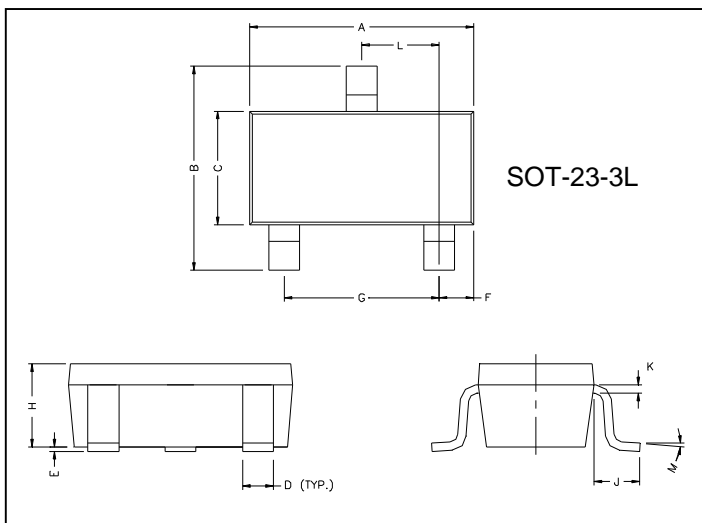
**RDS(ON), Vgs@2.5V, Ids@4.0A < 52mΩ**

### 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°

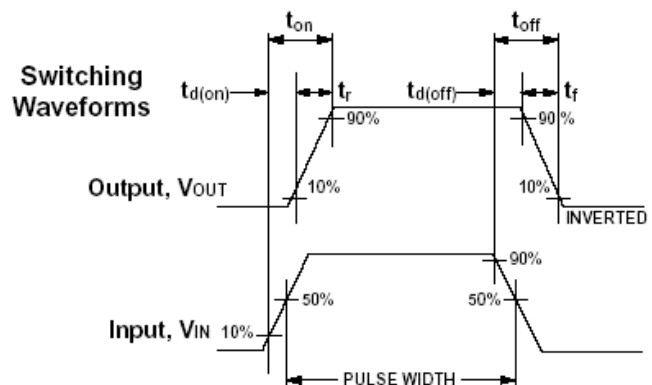
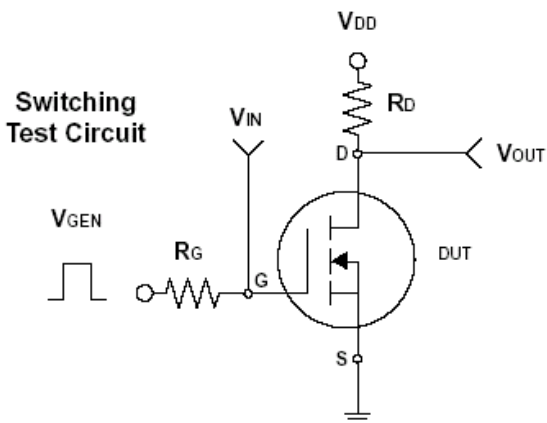
### Maximum Ratings and Thermal Characteristics (TA = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V <sub>DS</sub>	30	V	
Gate-Source Voltage	V <sub>GS</sub>	± 12		
Continuous Drain Current	I <sub>D</sub>	5.8	A	
Pulsed Drain Current	I <sub>DM</sub>	30		
Maximum Power Dissipation	P <sub>D</sub>	TA = 25°C	1.4	W
		TA = 75°C	1	
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C	
Junction-to-Ambient Thermal Resistance (PCB mounted)	R <sub>θJA</sub>	145	°C/W	

## ELECTRICAL CHARACTERISTICS (TA = 25oC unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5.8A$		22.0	28.0	m $\Omega$
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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.7		1.4	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	$\mu A$
Gate Body Leakage	$I_{GSS}$	$V_{GS} = \pm 12V, V_{DS} = 0V$			$\pm 100$	nA
Forward Transconductance	$g_{fs}$	$V_{DS} = 5V, I_D = 5A$	10	15	—	S
Gate Resistance	$R_g$	$F = 1.0MHz$	6	7	7.5	$\Omega$
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS} = 15V, I_D = 5.8A$ $V_{GS} = 4.5V$		11		nC
Gate-Source Charge	$Q_{gs}$			1.6		
Gate-Drain Charge	$Q_{gd}$			2.8		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 15V, R_L = 2.7\Omega$ $I_D = 1A, V_{GEN} = 10V$ $R_G = 3\Omega$		7		ns
Turn-On Rise Time	$t_r$			15		
Turn-Off Delay Time	$t_{d(off)}$			38		
Turn-Off Fall Time	$t_f$			3		
Input Capacitance	$C_{iss}$	$V_{DS} = 10V, V_{GS} = 0V$ $f = 1.0MHz$		340		pF
Output Capacitance	$C_{oss}$			115		
Reverse Transfer Capacitance	$C_{rss}$			33		
<b>Source-Drain Diode</b>						
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  $\leq 300\mu s$ , duty cycle  $\leq 2\%$



Characteristics Curve

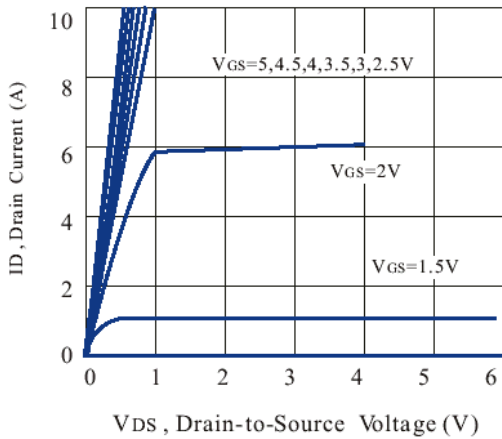


Figure 1. Output Characteristics

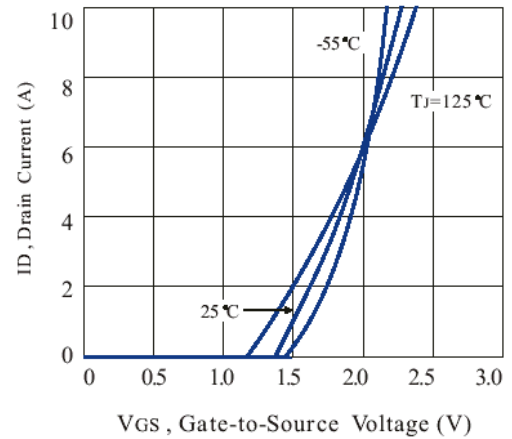


Figure 2. Transfer Characteristics

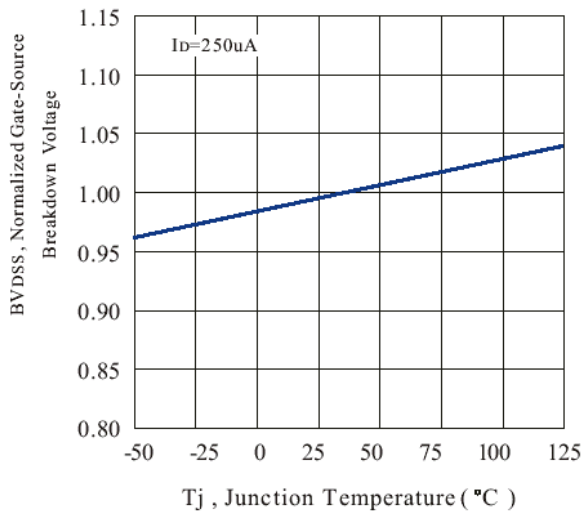


Figure 3. Breakdown Voltage Variation with Temperature

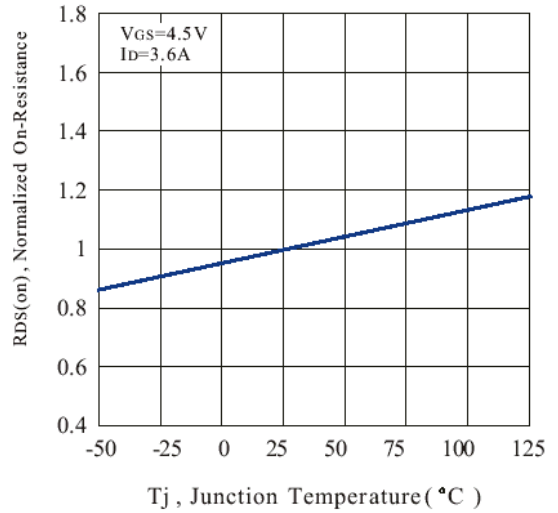


Figure 4. On-Resistance Variation with Temperature

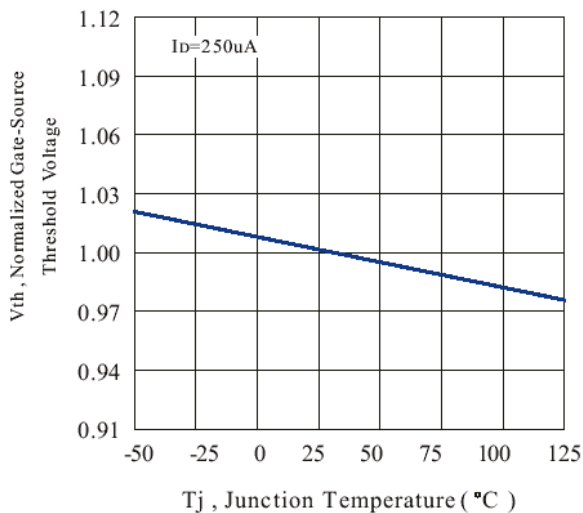


Figure 5. Gate Threshold Variation with Temperature

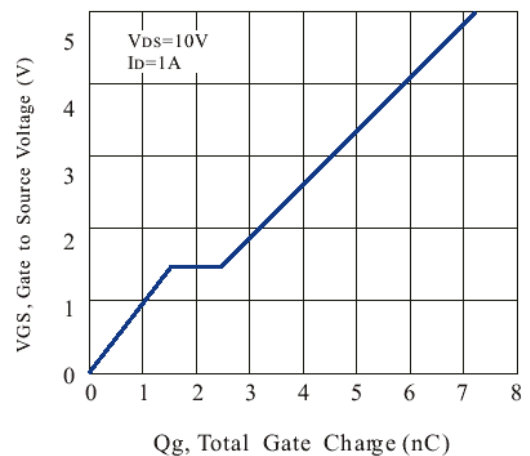


Figure 6. Gate Charge