

## 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**

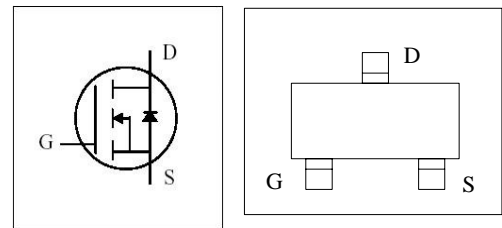
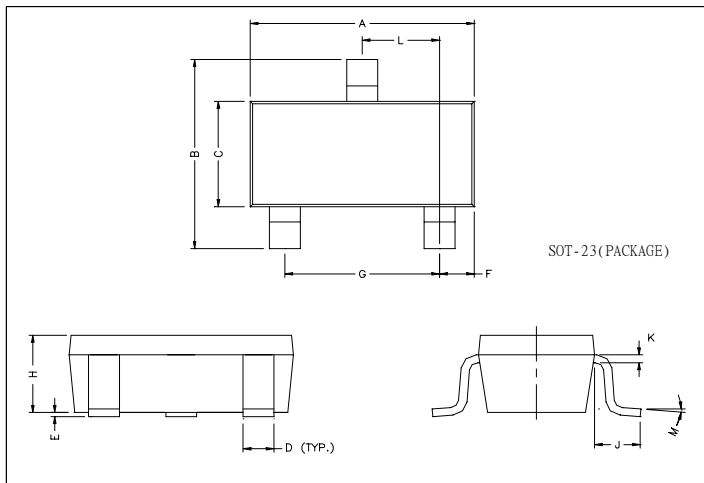
**RDS(ON), Vgs@1.8V, Ids@3.9A < 85mΩ**

### Features

Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

### Package Dimensions



REF.	Millimeter		REF.	Millimete	
	Min.	Max.		Min.	Max.
A	2.80	3.00	G	1.80	2.00
B	2.30	2.50	H	0.90	1.1
C	1.20	1.40	K	0.10	0.20
D	0.30	0.50	J	0.35	0.70
E	0	0.10	L	0.92	0.98
F	0.45	0.55	M	0°	10°

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

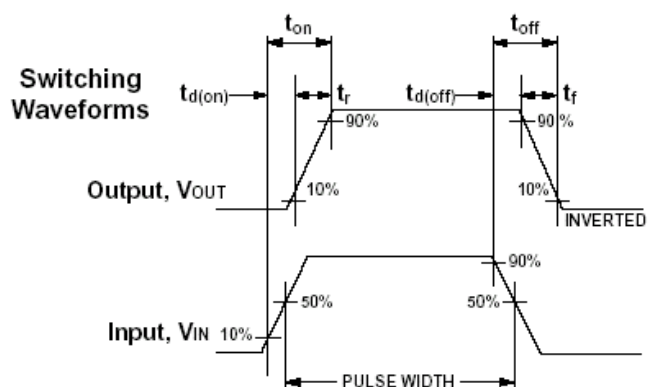
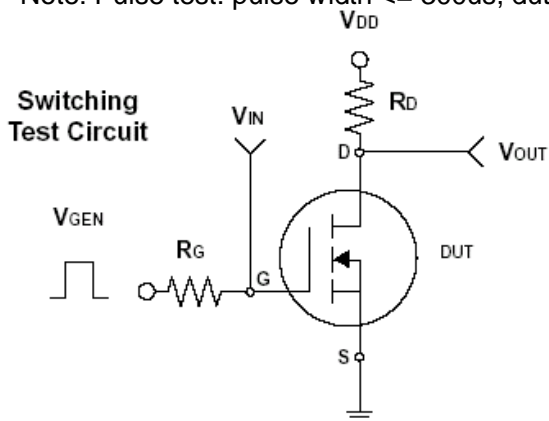
Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V <sub>DS</sub>	20	V	
Gate-Source Voltage	V <sub>GS</sub>	± 8		
Continuous Drain Current	I <sub>D</sub>	4.9	A	
Pulsed Drain Current	I <sub>DM</sub>	15		
Maximum Power Dissipation	P <sub>D</sub>	TA = 25°C	0.75	W
		TA = 75°C	0.48	
Operating Junction and 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>	140	°C/W	

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ELECTRICAL CHARACTERISTICS

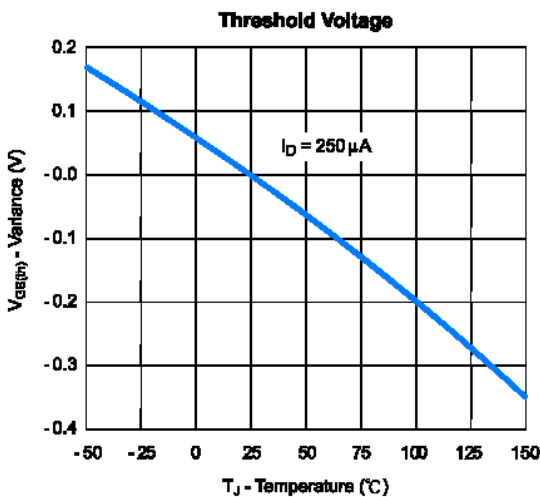
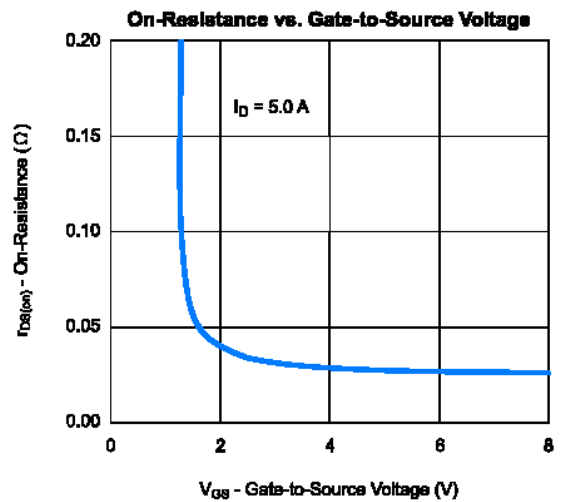
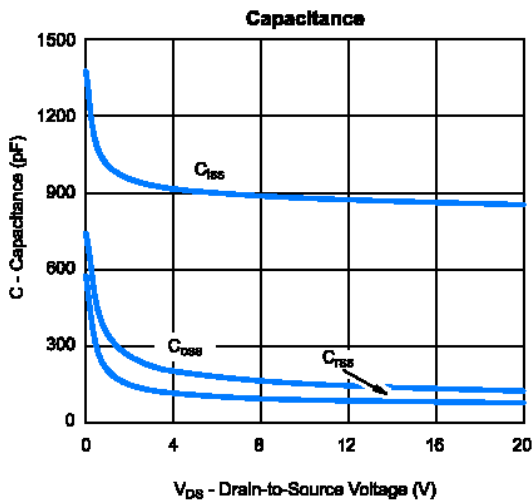
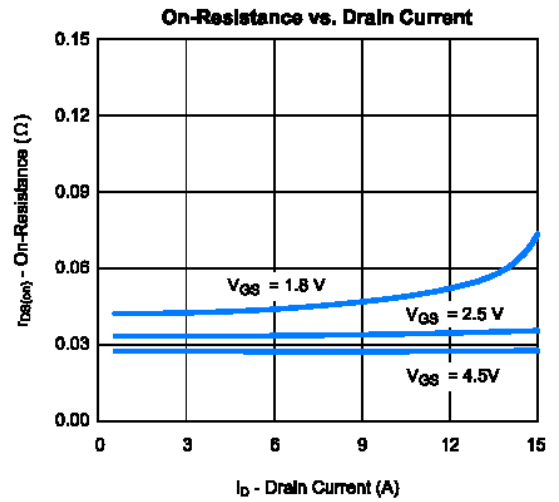
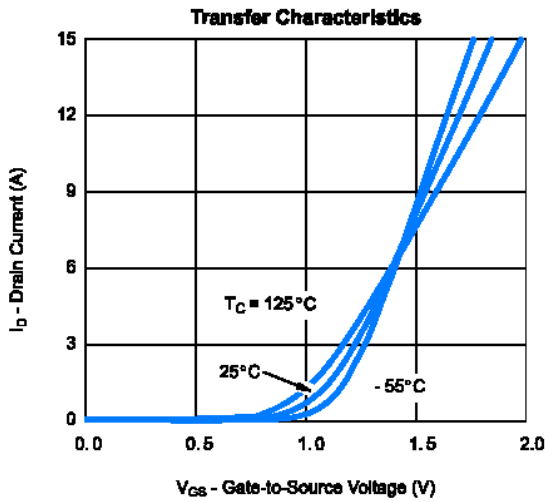
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$BV_{DS}$	$V_{GS} = 0V, I_D = 250\mu A$	20			V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 4.5V, I_D = 5.0A$		21.0	31.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = 2.5V, I_D = 4.5A$		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	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.4		1	V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 20V, V_{GS} = 0V$			1	μA
Gate Body Leakage	$I_{GSS}$	$V_{GS} = \pm 8V, V_{DS} = 0V$			± 100	nA
Forward Transconductance	$g_{fs}$	$V_{DS} = 15V, I_D = 5.0A$		40	—	S
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS} = 10V, I_D = 5.0A$ $V_{GS} = 4.5V$		11.2		nC
Gate-Source Charge	$Q_{gs}$			1.4		
Gate-Drain Charge	$Q_{gd}$			2.2		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 10V, R_L = 10\Omega$ $I_D = 1A, V_{GEN} = 4.5V$ $R_G = 6\Omega$		15		ns
Turn-On Rise Time	$t_r$			40		
Turn-Off Delay Time	$t_{d(off)}$			48		
Turn-Off Fall Time	$t_f$			31		
Input Capacitance	$C_{iss}$	$V_{DS} = 8V, V_{GS} = 0V$ $f = 1.0\text{ MHz}$		500		pF
Output Capacitance	$C_{oss}$			300		
Reverse Transfer Capacitance	$C_{rss}$			140		
<b>Source-Drain Diode</b>						
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 ≤ 300μs, duty cycle ≤ 2%



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Typical Characteristics (T<sub>J</sub> = 25°C Noted)



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