20V N-Channel Enhancement-Mode MOSFET

V_{DS}= 20V I_d=6.5A ESD Protected：2000V

$R_{DS(ON)}$, V_{gs} @ 1.8V, I_{ds} @ 5A = 36mΩ

$R_{DS(ON)}$, V_{gs} @ 2.5V, I_{ds} @ 5.5A = 28mΩ

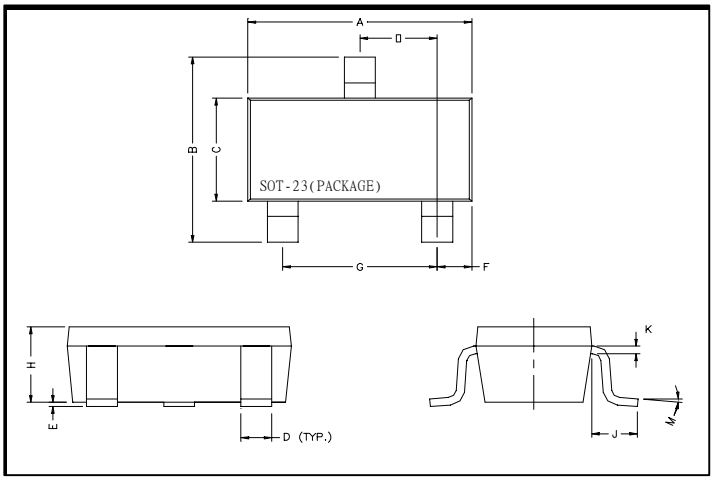
$R_{DS(ON)}$, V_{gs} @ 4.5V, I_{ds} @ 6.5A = 24mΩ

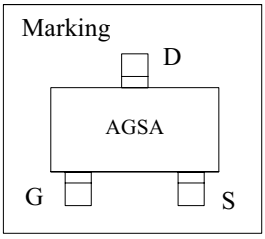
Features

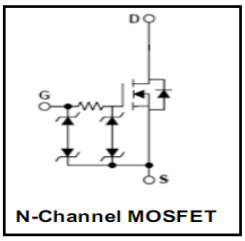
Advanced trench process technology

High Density Cell Design For Ultra Low On-Resistance

Package Dimensions







REF.	Millimeter		REF.	Millimete	
	Min.	Max.		Min.	Max.
A	2.70	3.10	G	1.90	REF.
B	2.40	2.80	H	1.00	1.30
C	1.40	1.60	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°

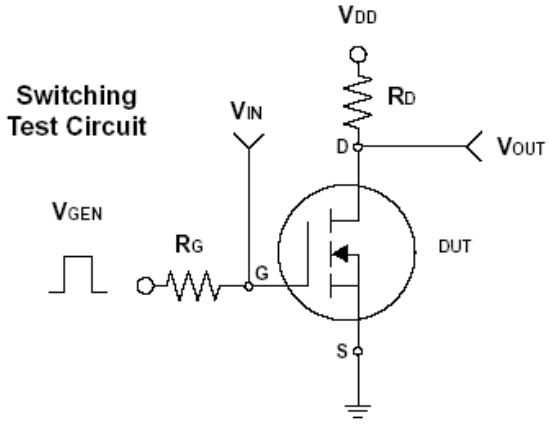
Maximum Ratings and Thermal Characteristics (TA = 25 °C unless otherwise noted)

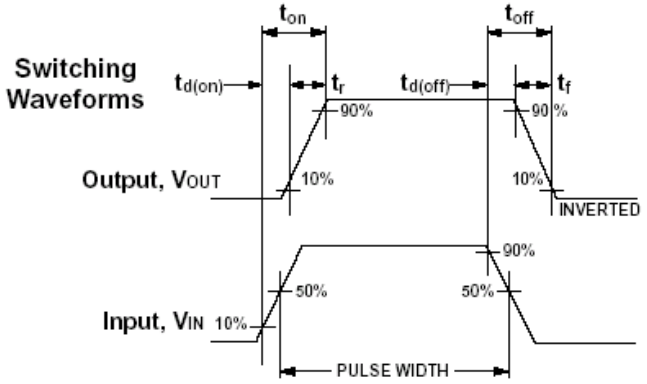
Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	20	V
Gate-Source Voltage		V_{GS}	± 8	
Continuous Drain Current		I_D	6.5	A
Pulsed Drain Current		I_{DM}	30	
Maximum Power Dissipation	TA = 25°C	P_D	1.4	W
	TA = 75°C		0.9	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C
Junction-to-Ambient Thermal Resistance (PCB mounted)		$R_{\theta JA}$	140	°C/W

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	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} = 1.8V, I_D = 5A		28.0	36.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 2.5V, I_D = 5.5A		23.0	28.0	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D =6.5A		20.0	24.0	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	0.4		1.0	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 16V, V_{GS} = 0V			1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ± 8V, V_{DS} = 0V			± 10	uA
Gate Resistance	R_g	V_{DS} = 10V, f = 1.0MHz		1.5		Ω
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 10V, I_D = 6.5A V_{GS} = 4.5V		10	13	nC
Gate-Source Charge	Q_{gs}			1.4	1.82	
Gate-Drain Charge	Q_{gd}			2.7	3.51	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 10V, RL=1.5Ω I_D = 1A, V_{GEN} = 5V R_G = 3Ω		6.2	12.4	ns
Turn-On Rise Time	t_r			12.7	25.4	
Turn-Off Delay Time	$t_{d(off)}$			51.7	103.4	
Turn-Off Fall Time	t_f			16	32	
Input Capacitance	C_{iss}	V_{DS} = 10V, V_{GS} = 0V f = 1.0 MHz		1160		pF
Output Capacitance	C_{oss}			104		
Reverse Transfer Capacitance	C_{rss}			29		
Source-Drain Diode						
Max. Diode Forward Current	I_S				1	A
Diode Forward Voltage	V_{SD}	I_S = 1.0A, V_{GS} = 0V		0.7	1.2	V

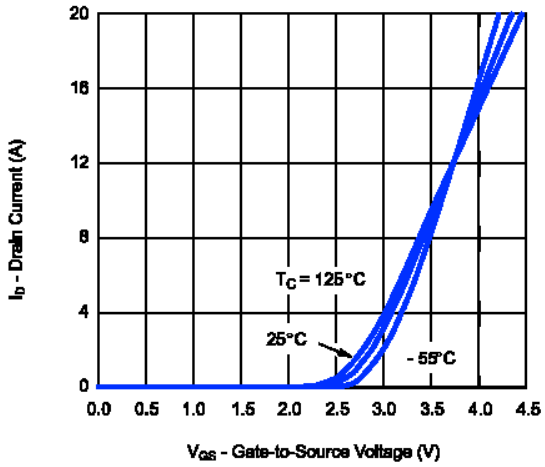
Note: Pulse test: pulse width <= 300us, duty cycle<= 2%



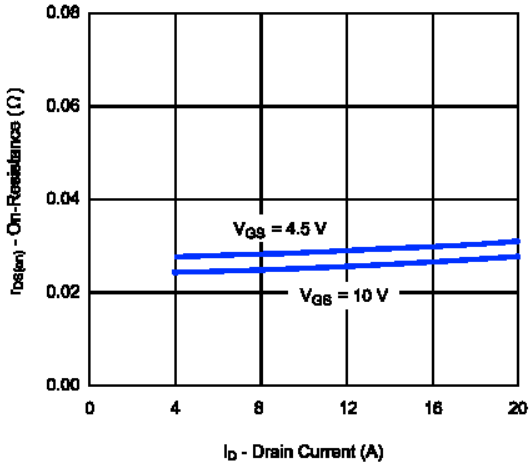


Typical Characteristics (T_J =25℃ Noted)

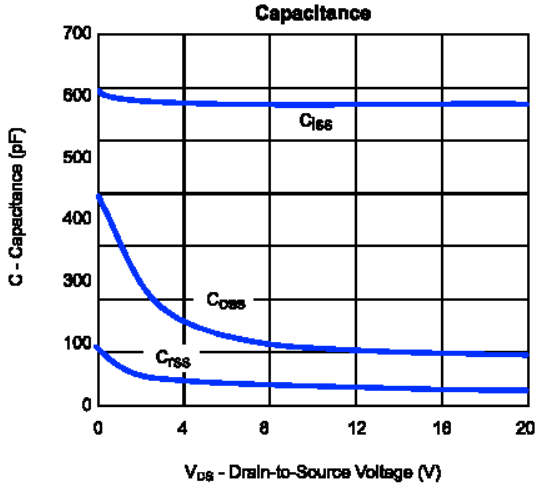
Transfer Characteristics



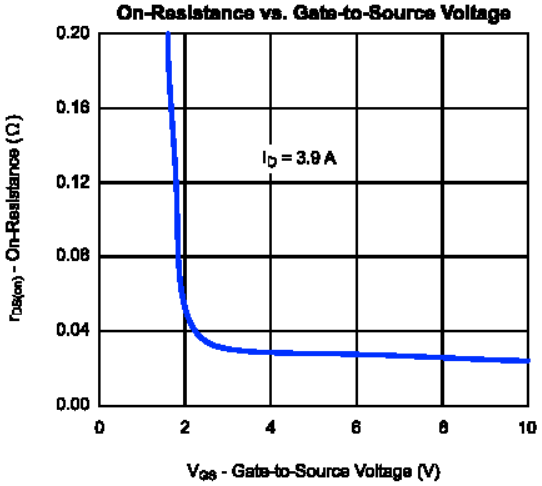
On-Resistance vs. Drain Current



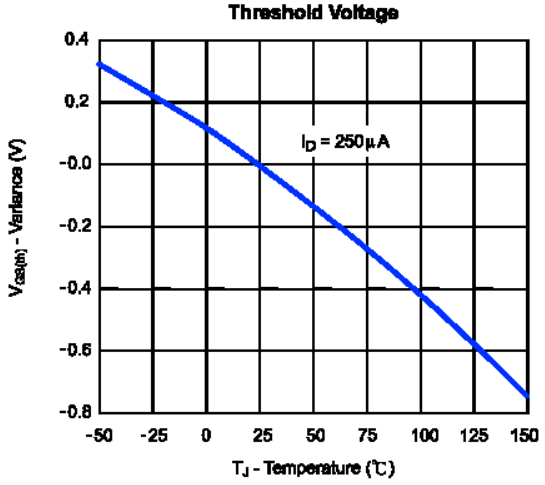
Capacitance



On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



On-Region Characteristics