



M-MOS Semiconductor Hong Kong Limited

20V P-Channel Enhancement-Mode MOSFET

$V_{DS} = -20V$

$R_{DS(ON)}, V_{GS} @ -1.5V, I_{ds} @ -0.2A = 350m\Omega$

$R_{DS(ON)}, V_{GS} @ -1.8V, I_{ds} @ -2.0A = 220m\Omega$

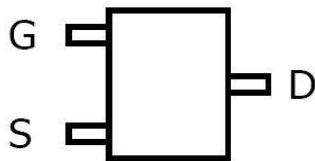
$R_{DS(ON)}, V_{GS} @ -2.5V, I_{ds} @ -2.0A = 170m\Omega$

$R_{DS(ON)}, V_{GS} @ -4.5V, I_{ds} @ -2.8A = 135m\Omega$

Features

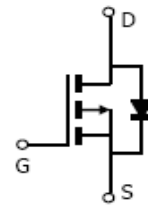
Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance

SOT- 23



Top View

Internal Schematic Diagram



P-Channel MOSFET

Maximum Ratings and Thermal Characteristics ($T_A = 25^\circ C$ unless otherwise noted)

Parameter	Symbol	Limit	Unit	
Drain-Source Voltage	V_{DS}	-20	V	
Gate-Source Voltage	V_{GS}	± 12		
Continuous Drain Current ¹⁾	I_D	-2.8	A	
Pulsed Drain Current ²⁾	I_{DM}	-8		
Maximum Power Dissipation	P_D	$T_A = 25^\circ C$	1.25	W
		$T_A = 75^\circ C$	0.8	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ C$	
Junction-to-Ambient Thermal Resistance (PCB mounted) ³⁾	$R_{\theta JA}$	140	$^\circ C/W$	

Note: 1. Fused current that based on wire numbers and diameter
2. Repetitive Rating: Pulse width limited by the maximum junction temperature
3. 1-in² 2oz Cu PCB board

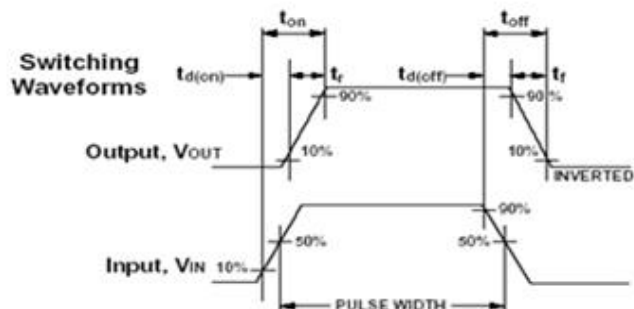
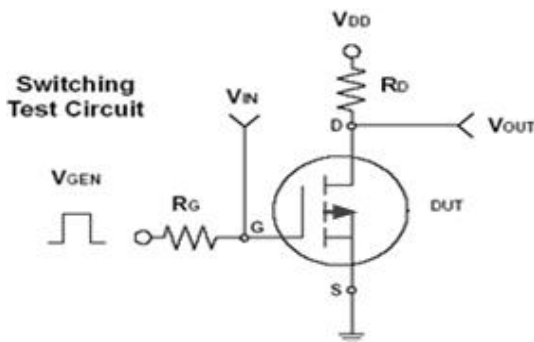


P-Channel Enhancement-Mode MOSFET

ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS} = 0V, I_D = 250\mu A$	-20			V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -1.5V, I_D = -0.2A$		204	350	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -1.8V, I_D = -2.0A$		151	220	
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -2.5V, I_D = -2.0A$		119	170	
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS} = -4.5V, I_D = -2.8A$		100	135	
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	-0.4	-0.7	-0.9	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20V, V_{GS} = 0V$			-1	uA
Gate Body Leakage	I_{GSS}	$V_{GS} = \pm 12V, V_{DS} = 0V$			±100	nA
Dynamic³⁾						
Total Gate Charge	Q_g	$V_{DS} = -6V, I_D = -2.8A$ $V_{GS} = -4.5V$		4.9		nC
Gate-Source Charge	Q_{gs}			0.62		
Gate-Drain Charge	Q_{gd}			1.07		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -6V, R_L = 6\Omega$ $I_D = -1A, V_{GEN} = -4.5V$ $R_G = 6\Omega$		10.1		ns
Turn-On Rise Time	t_r			4.76		
Turn-Off Delay Time	$t_{d(off)}$			84.1		
Turn-Off Fall Time	t_f			25.2		
Input Capacitance	C_{iss}	$V_{DS} = -6V, V_{GS} = 0V$ $f = 1.0\text{ MHz}$		472		pF
Output Capacitance	C_{oss}			71		
Reverse Transfer Capacitance	C_{rss}			51		
Source-Drain Diode						
Max. Diode Forward Current	I_S				-1.6	A
Diode Forward Voltage	V_{SD}	$I_S = -1.6A, V_{GS} = 0V$		0.86		V

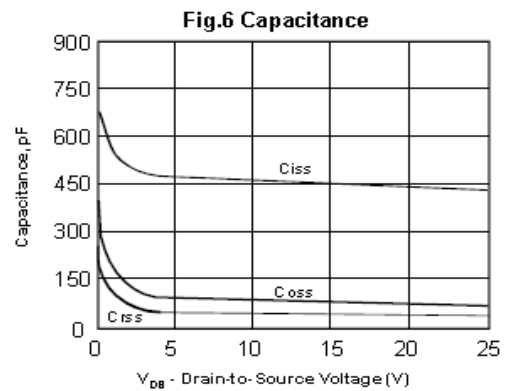
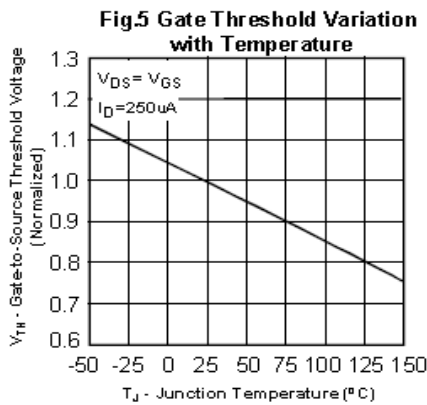
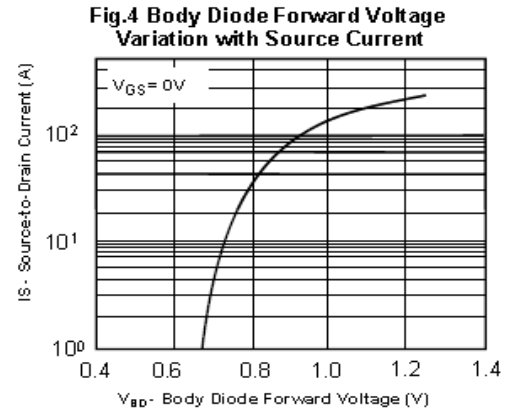
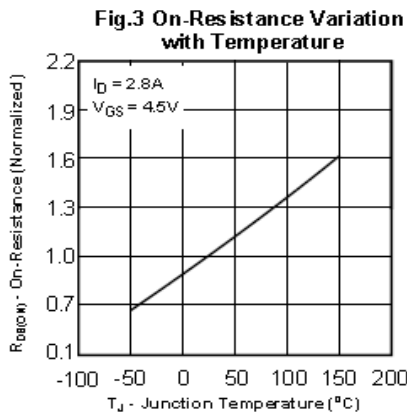
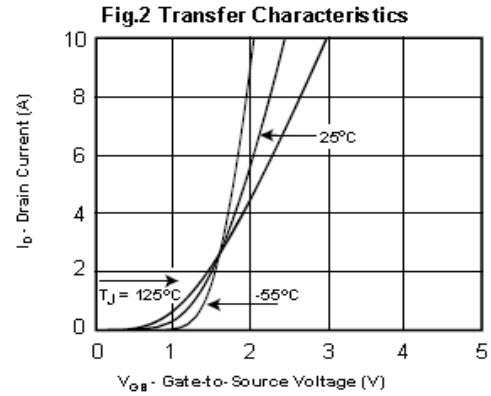
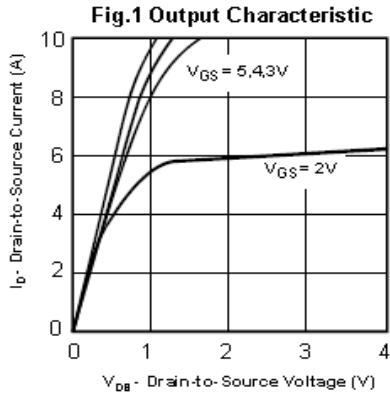
Note: Pulse test: pulse width <= 300us, duty cycle <= 2%
3. Guaranteed by design; not subject to production testing





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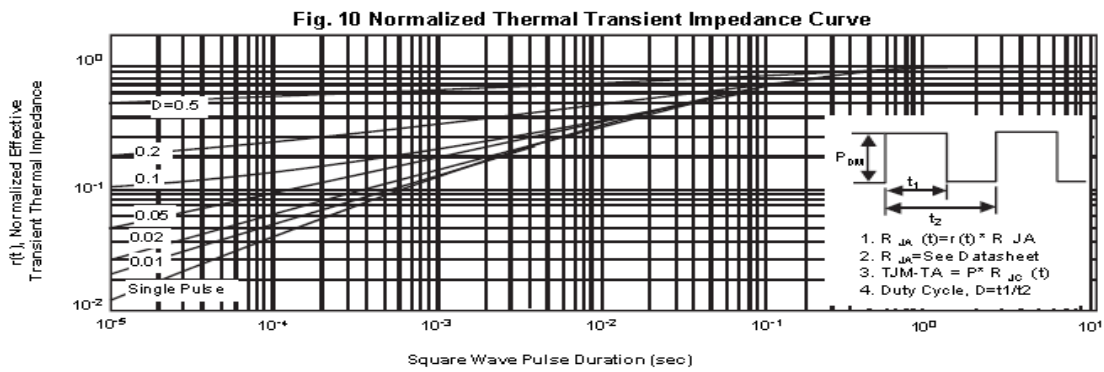
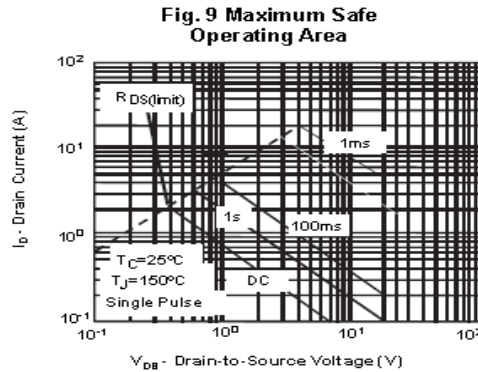
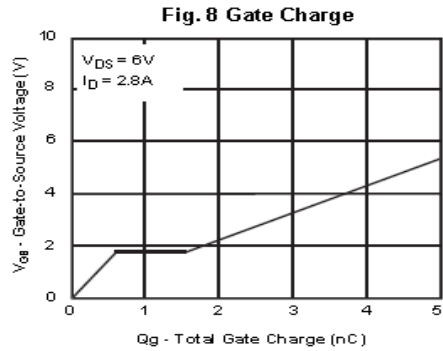
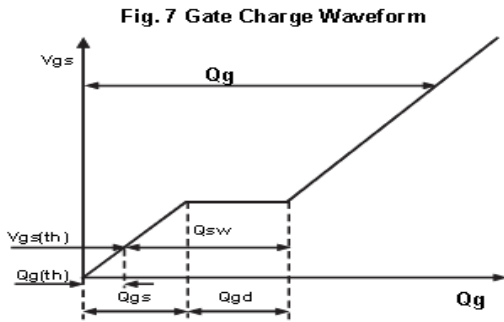
Typical Characteristics Curves ($T_a=25^\circ\text{C}$, unless otherwise note)





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Typical Characteristics Curves (Ta=25°C, unless otherwise note)





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