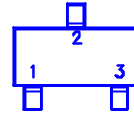
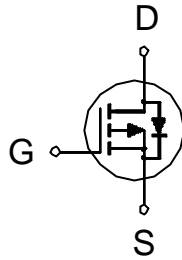


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-20	118m	-3A



1 :GATE  
2 :DRAIN  
3 :SOURCE

**ABSOLUTE MAXIMUM RATINGS ( $T_C = 25\text{ }^\circ\text{C}$  Unless Otherwise Noted)**

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	-20	V
Gate-Source Voltage		$V_{GS}$	$\pm 12$	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	-3	A
	$T_C = 70\text{ }^\circ\text{C}$		-1.4	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-10	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	1.25	W
	$T_C = 70\text{ }^\circ\text{C}$		0.8	
Operating Junction & Storage Temperature Range		$T_j, T_{stg}$	-55 to 150	$^\circ\text{C}$

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		166	$^\circ\text{C} / \text{W}$

<sup>1</sup>Pulse width limited by maximum junction temperature.

<sup>2</sup>Duty cycle  $\leq 1\%$

**ELECTRICAL CHARACTERISTICS ( $T_C = 25\text{ }^\circ\text{C}$ , Unless Otherwise Noted)**

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = -250\mu\text{A}$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-0.45	-0.8	-1.2	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 12\text{V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}$			-1	$\mu\text{A}$
		$V_{DS} = -16\text{V}, V_{GS} = 0\text{V}, T_J = 125\text{ }^\circ\text{C}$			-10	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = -5\text{V}, V_{GS} = -4.5\text{V}$	-6			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = -2.5\text{V}, I_D = -1\text{A}$		150	215	m
		$V_{GS} = -4.5\text{V}, I_D = -2\text{A}$		98	118	
		$V_{GS} = -10\text{V}, I_D = -2\text{A}$		72	85	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = -5\text{V}, I_D = -2\text{A}$		16		S

DYNAMIC						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -6V, f = 1MHz$		430		pF
Output Capacitance	$C_{oss}$			235		
Reverse Transfer Capacitance	$C_{rss}$			95		
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -4.5V,$ $I_D = -2A$		7.6	10	nC
Gate-Source Charge <sup>2</sup>	$Q_{gs}$			3.2		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$			2		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DD} = -10V$ $I_D \cong -1A, V_{GS} = -4.5V, R_G = 6$		11	22	nS
Rise Time <sup>2</sup>	$t_r$			32	55	
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			38	68	
Fall Time <sup>2</sup>	$t_f$			32	55	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ( $T_C = 25\text{ }^\circ\text{C}$ )						
Continuous Current	$I_S$				-1.6	A
Pulsed Current <sup>3</sup>	$I_{SM}$				-3	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = -1A, V_{GS} = 0V$			-1.2	V

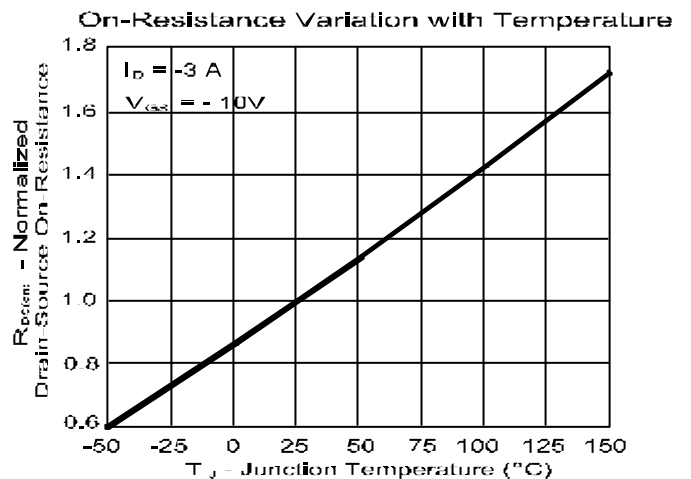
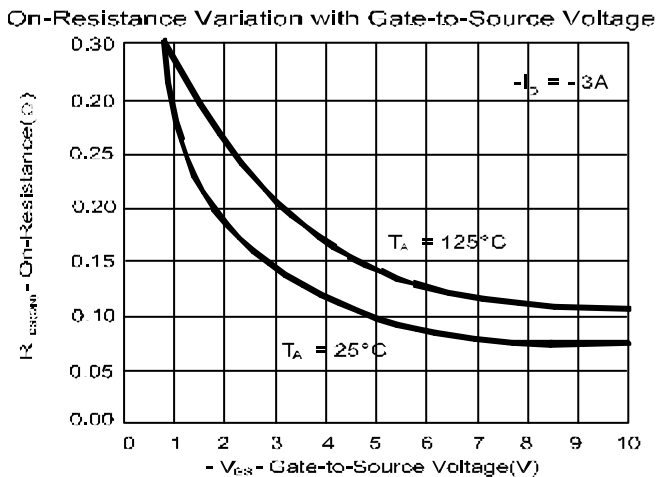
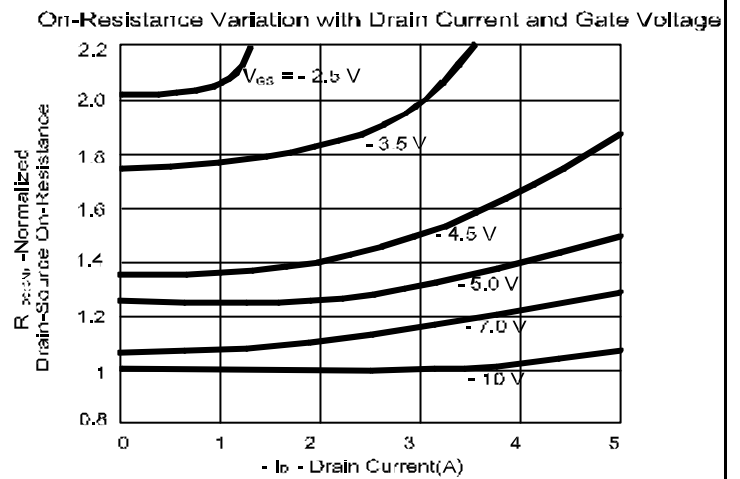
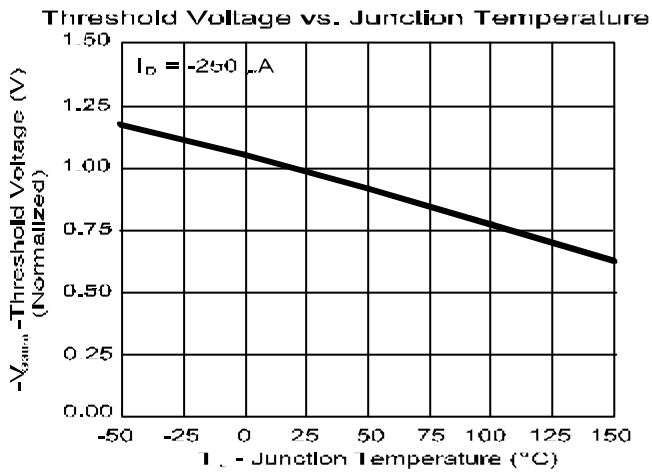
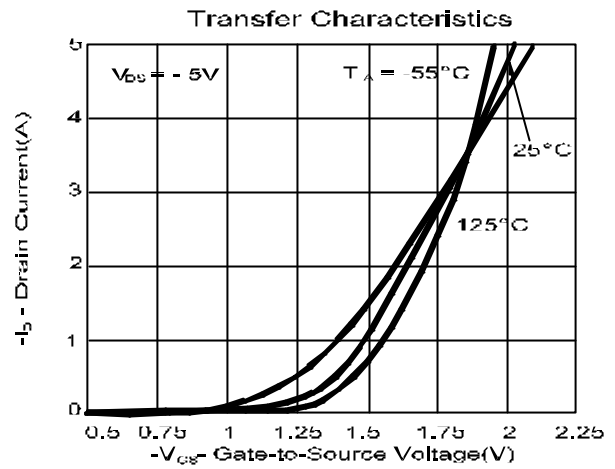
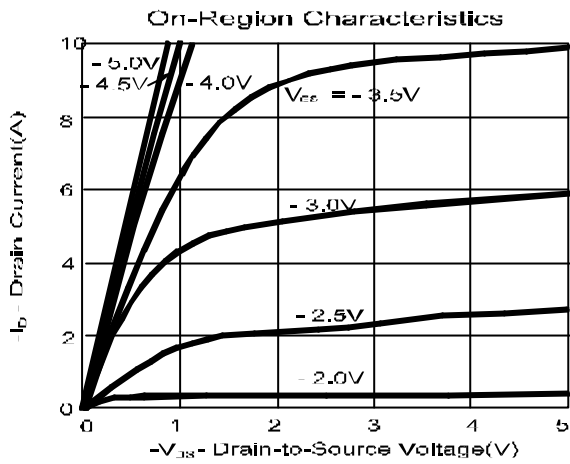
<sup>1</sup>Pulse test : Pulse Width  $\leq 300\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

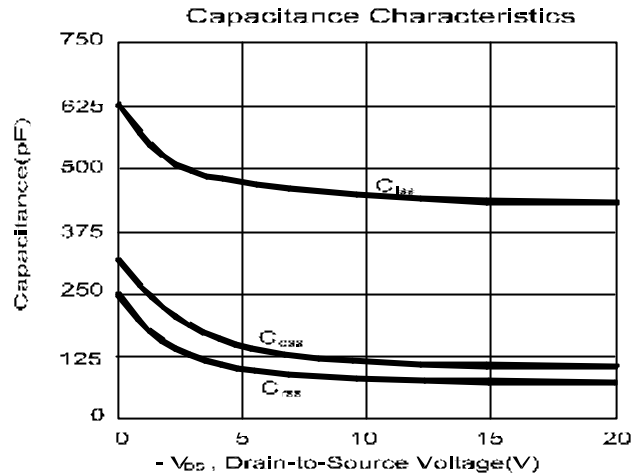
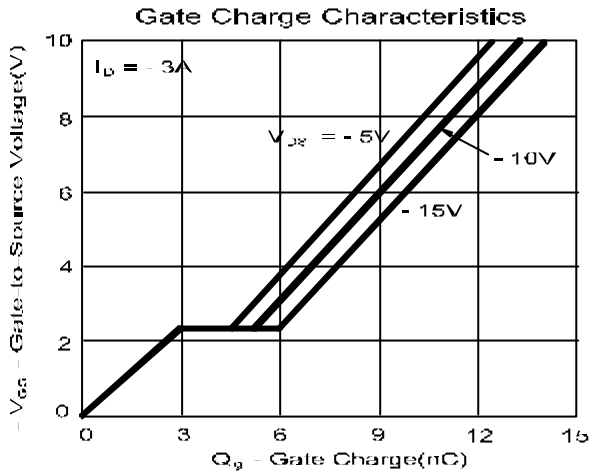
<sup>2</sup>Independent of operating temperature.

<sup>3</sup>Pulse width limited by maximum junction temperature.

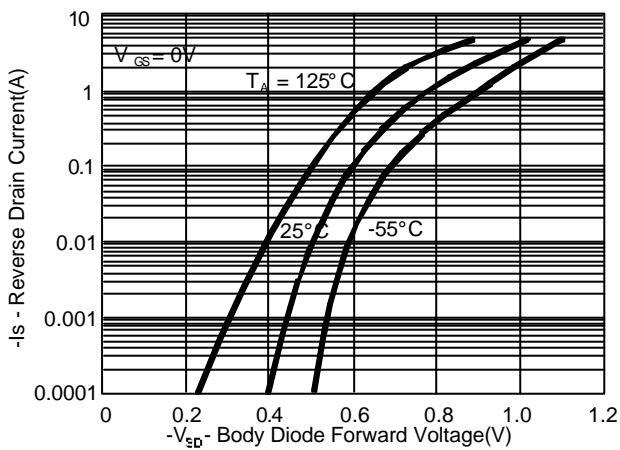
**REMARK: THE PRODUCT MARKED WITH “21YWW”, DATE CODE or LOT #**

**Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.**

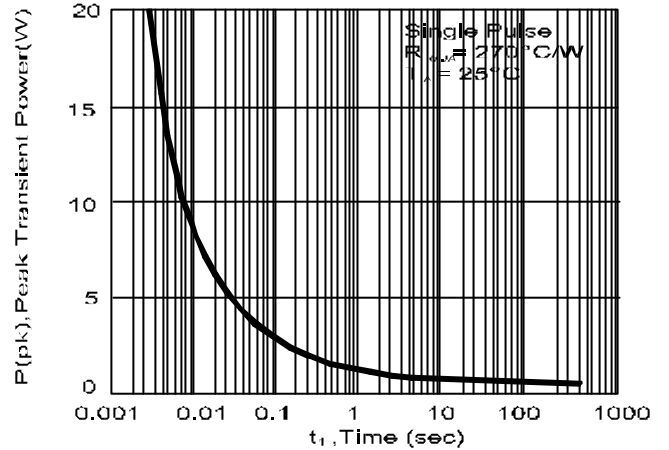




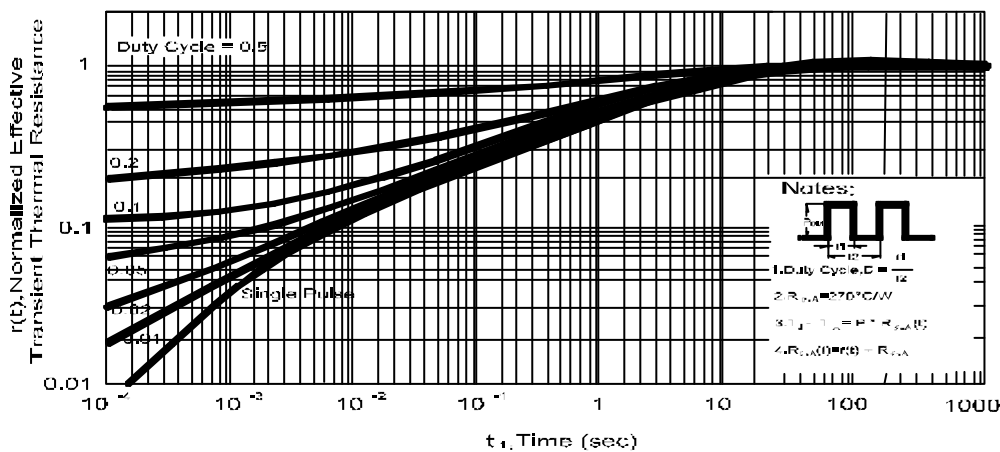
Body Diode Forward Voltage Variation with Source Current and Temperature



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



**SOT-23 (M3) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	0.85		1.15	H	0.1	0.15	0.25
B	2.4		3	I	0.37		
C	1.4	1.6	1.8	J			
D	2.7	2.9	3.1	K			
E	1	1.1	1.3	L			
F	0		0.1	M			
G	0.35		0.5	N			

