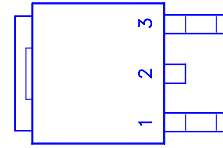
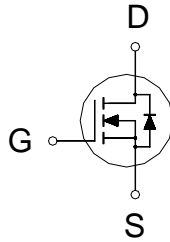


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
30	25m	12A



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		$V_{DS}$	30	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	12	A
	$T_C = 70\text{ }^\circ\text{C}$		10	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	30	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	32	W
	$T_C = 70\text{ }^\circ\text{C}$		22	
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-Case	$R_{\theta JC}$		3	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		75	$^\circ\text{C} / \text{W}$

<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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	2.5	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 20V$			$\pm 250$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	$\mu A$
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55\text{ }^\circ\text{C}$			10	

On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	30			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 6A$		25	37	m
		$V_{GS} = 10V, I_D = 12A$		18	25	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 5V, I_D = 12A$		19		S

DYNAMIC							
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 10V, f = 1MHz$			790	pF	
Output Capacitance	$C_{oss}$				175		
Reverse Transfer Capacitance	$C_{rss}$				65		
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V, I_D = 12A$			16	nC	
Gate-Source Charge <sup>2</sup>	$Q_{gs}$				2.5		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$				2.1		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DD} = 10V, I_D \cong 1A, V_{GS} = 10V, R_{GEN} = 6$			2.2	4.4	nS
Rise Time <sup>2</sup>	$t_r$				7.5	15	
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$				11.8	21.3	
Fall Time <sup>2</sup>	$t_f$				3.7	7.4	

**SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>c</sub> = 25 °C)**

Continuous Current	$I_S$				1.3	A
Pulsed Current <sup>3</sup>	$I_{SM}$				2.6	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 1A, V_{GS} = 0V$			1	V

<sup>1</sup>Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

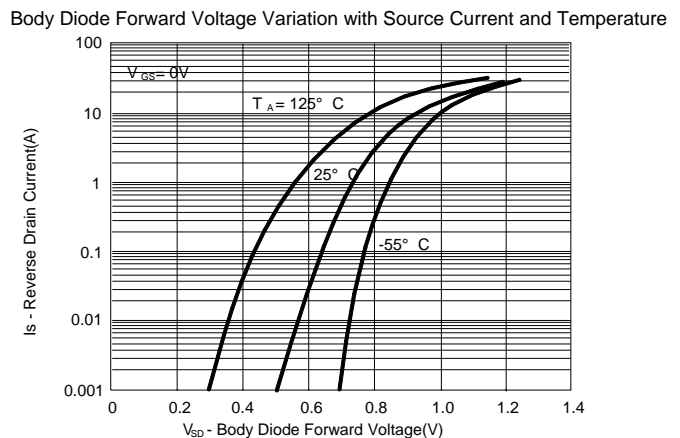
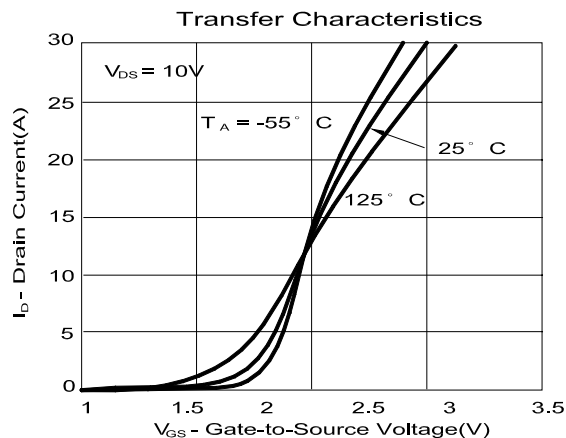
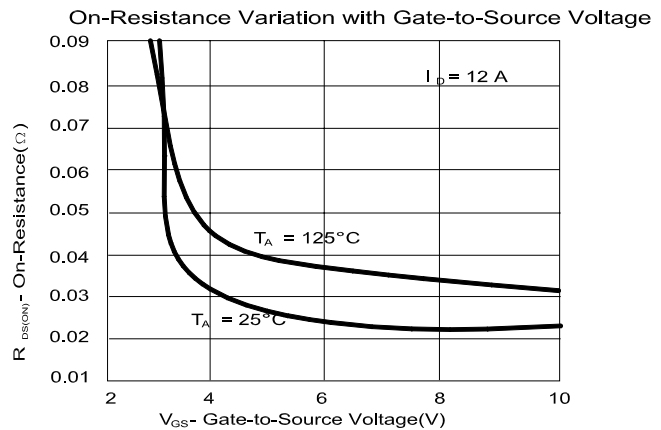
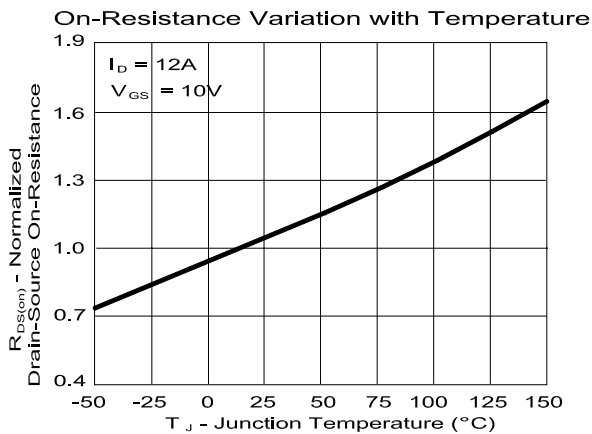
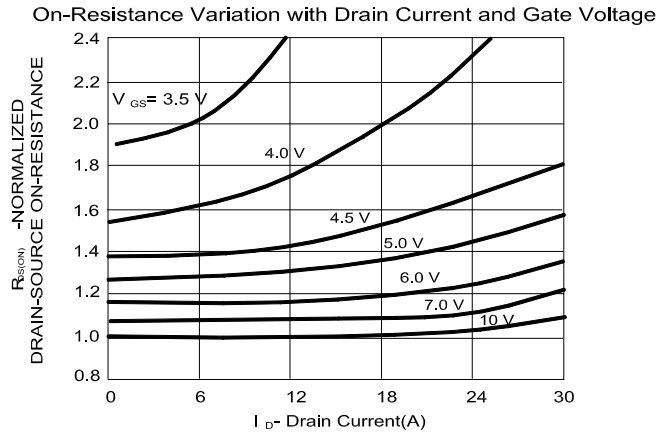
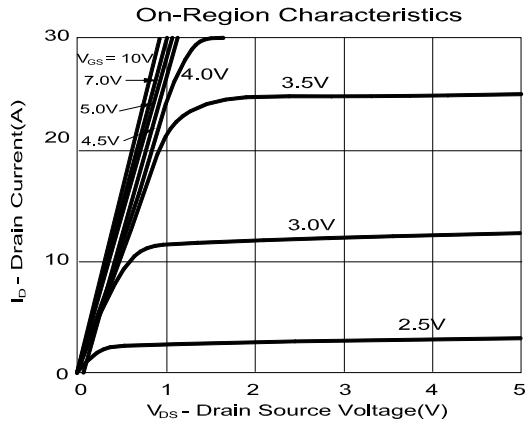
<sup>2</sup>Independent of operating temperature.

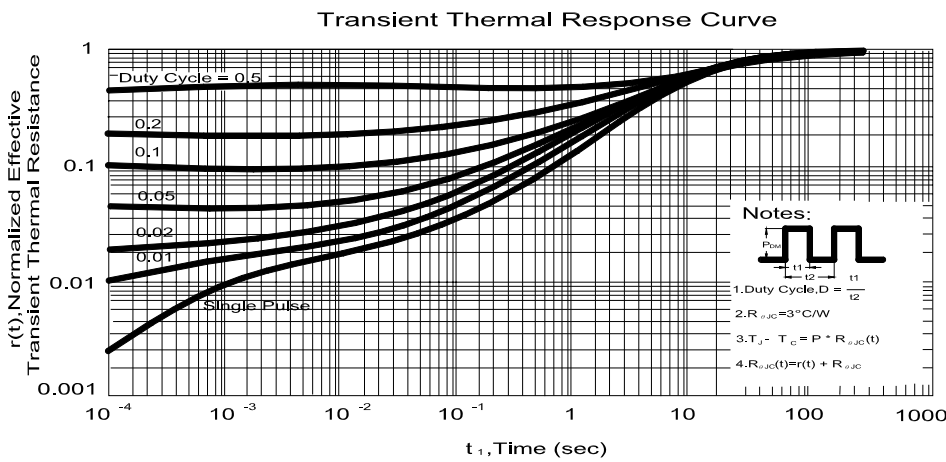
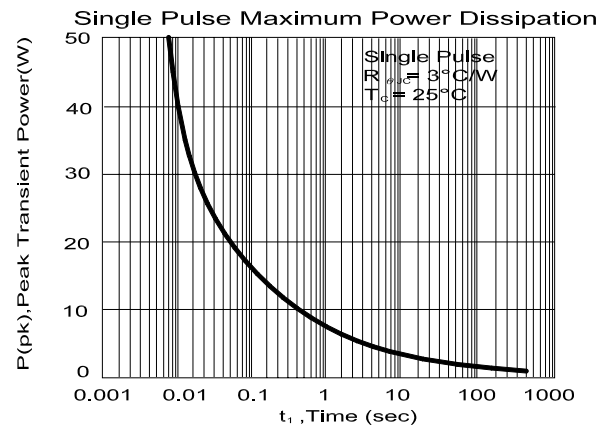
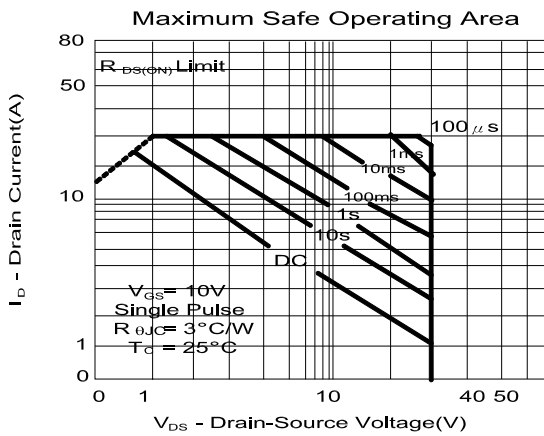
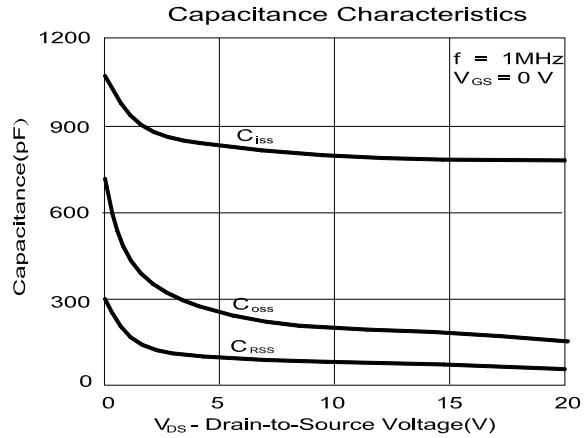
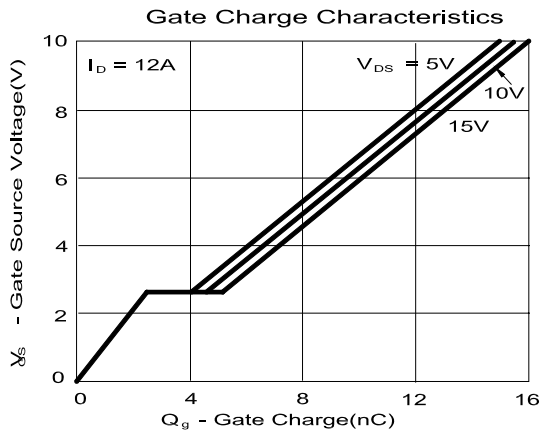
<sup>3</sup>Pulse width limited by maximum junction temperature.

**REMARK: THE PRODUCT MARKED WITH “P2503BDG”, DATE CODE or LOT #**

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

**TYPICAL PERFORMANCE CHARACTERISTICS**





**TO-252 (DPAK) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.35		10.4	H	0.89		2.03
B	2.2		2.4	I	6.35		6.80
C	0.45		0.6	J	5.2		5.5
D	0.89		1.5	K	0.6		1
E	0.45		0.69	L	0.5		0.9
F	0.03		0.23	M	3.96	4.57	5.18
G	5.2		6.2	N			

