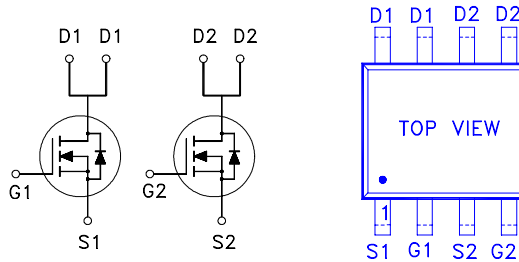


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
30	20m	7A



G : GATE  
D : DRAIN  
S : SOURCE

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

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS	UNITS
Drain-Source Voltage	$V_{DS}$	$\pm 30$	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	$T_C = 25\text{ }^\circ\text{C}$	7
		$T_C = 70\text{ }^\circ\text{C}$	6
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	40	A
Power Dissipation	$P_D$	$T_C = 25\text{ }^\circ\text{C}$	2
		$T_C = 70\text{ }^\circ\text{C}$	1.3
Junction & Storage Temperature Range	$T_j, T_{stg}$	-55 to 150	$^\circ\text{C}$
Lead Temperature ( <sup>1</sup> / <sub>16</sub> " from case for 10 sec.)	$T_L$	275	

**THERMAL RESISTANCE RATINGS**

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient	$R_{\theta JA}$		62.5	$^\circ\text{C} / \text{W}$

<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	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	0.7	1	1.4	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 24\text{V}, V_{GS} = 0\text{V}$			1	$\mu\text{A}$
		$V_{DS} = 20\text{V}, V_{GS} = 0\text{V}, T_J = 55\text{ }^\circ\text{C}$			10	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 5\text{V}, V_{GS} = 10\text{V}$	25			A

Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 2.5V, I <sub>D</sub> = 5A	40	48	m
		V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 6A	23	30	
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 7A	18	25	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 5A	16		S
<b>DYNAMIC</b>					
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz	830		pF
Output Capacitance	C <sub>oss</sub>		185		
Reverse Transfer Capacitance	C <sub>rss</sub>		80		
Total Gate Charge <sup>2</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 0.5V <sub>(BR)DSS</sub> , V <sub>GS</sub> = 5V, I <sub>D</sub> = 7A	9	13	nC
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>		2.8		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>		3.1		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>	V <sub>DS</sub> = 15V I <sub>D</sub> ≅ 1A, V <sub>GS</sub> = 10V, R <sub>GEN</sub> = 6	5.7		nS
Rise Time <sup>2</sup>	t <sub>r</sub>		10		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>		18		
Fall Time <sup>2</sup>	t <sub>f</sub>		5		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>C</sub> = 25 °C)</b>					
Continuous Current	I <sub>S</sub>			3	A
Pulsed Current <sup>3</sup>	I <sub>SM</sub>			6	
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 1A, V <sub>GS</sub> = 0V		1	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 5A, di <sub>F</sub> /dt = 100A / μS	15.5		nS
Reverse Recovery Charge	Q <sub>rr</sub>		7.9		nC

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

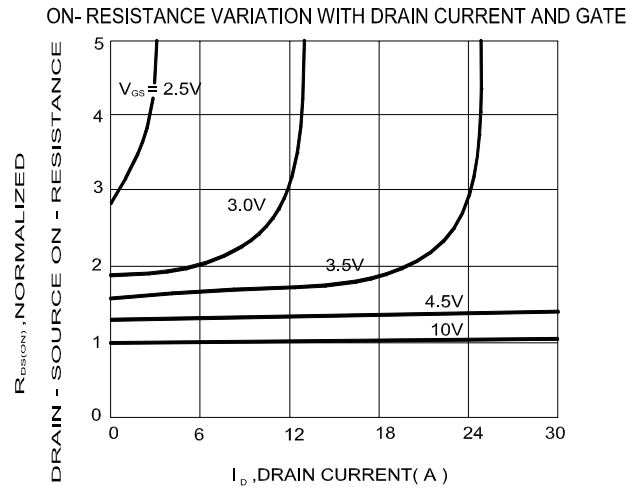
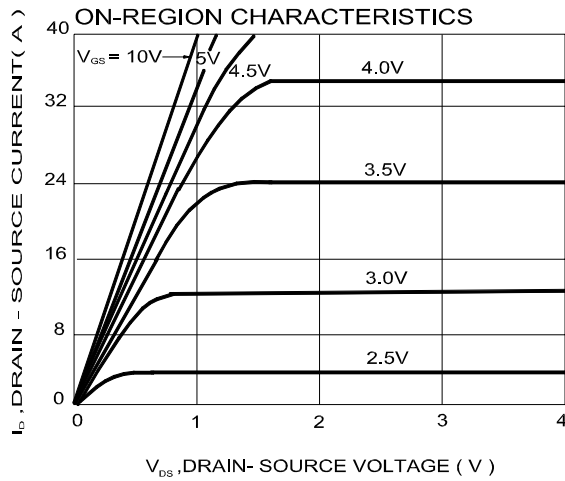
<sup>2</sup>Independent of operating temperature.

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

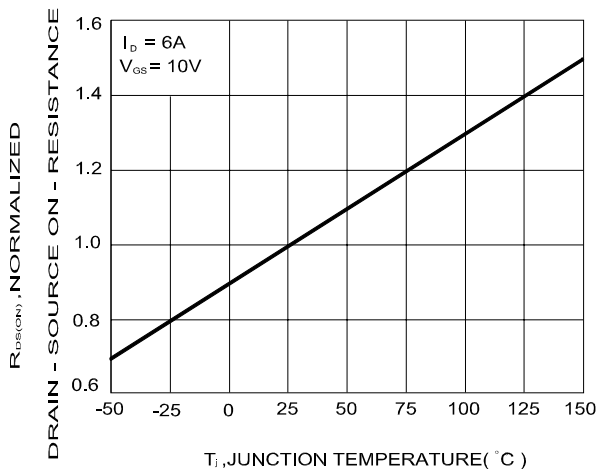
**REMARK: THE PRODUCT MARKED WITH “P07D03LVG”, DATE CODE or LOT #**

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

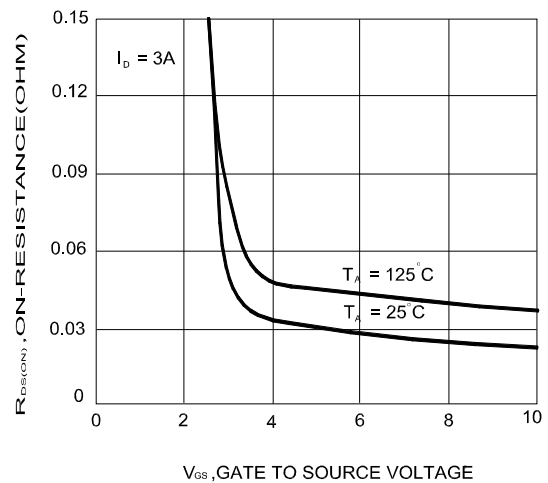
**TYPICAL PERFORMANCE CHARACTERISTICS**



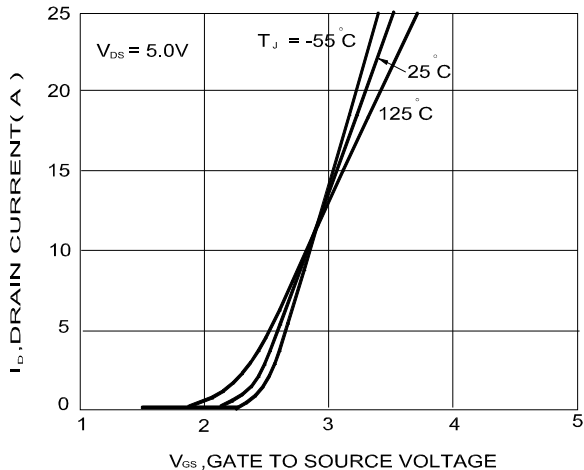
**ON-RESISTANCE VARIATION WITH TEMPERATURE**



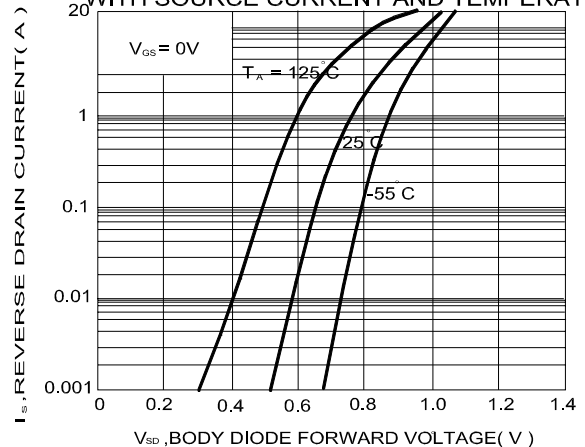
**ON-RESISTANCE VARIATION WITH GATE-TO-SOURCE VOLTAGE**

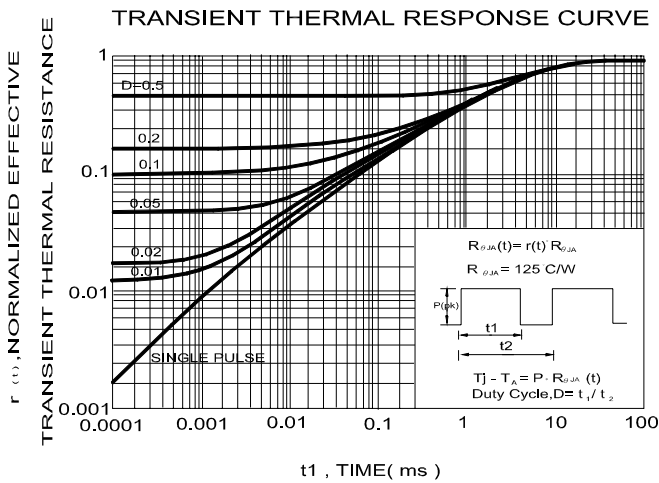
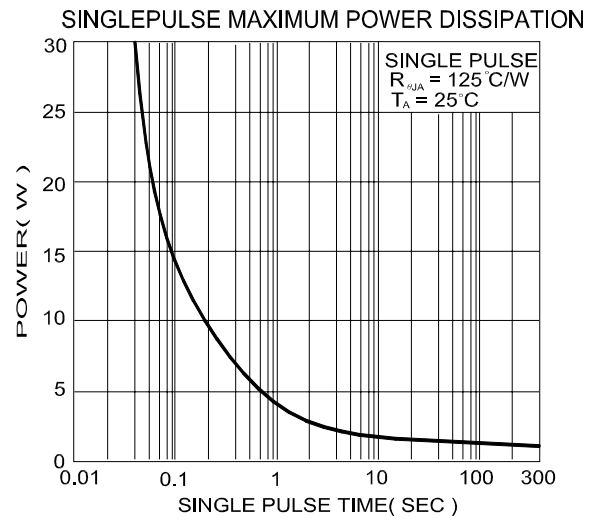
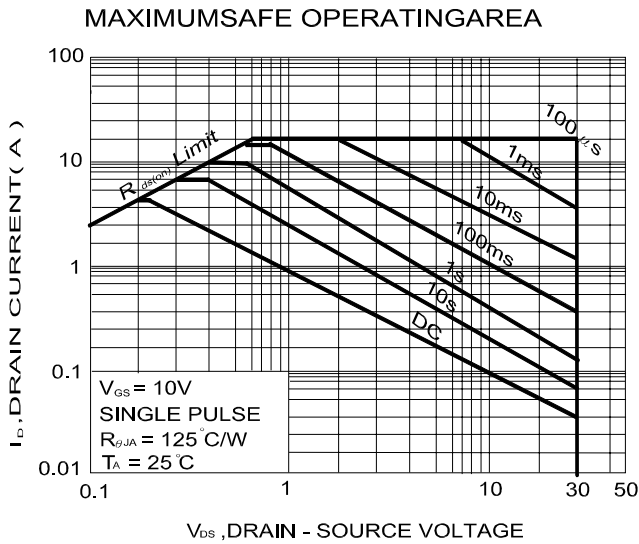
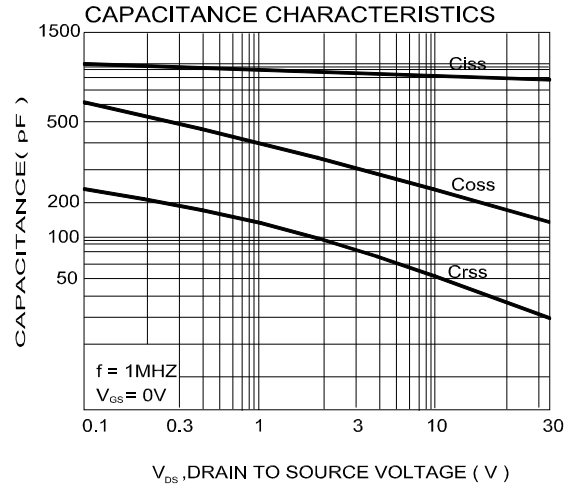
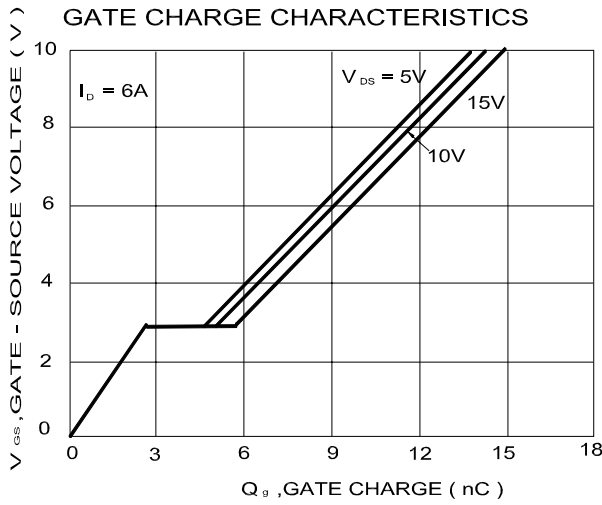


**TRANSFER CHARACTERISTICS**



**BODY DIODE FORWARD VOLTAGE VARIATION WITH SOURCE CURRENT AND TEMPERATURE**





**SOIC-8(D) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	4.8	4.9	5.0	H	0.5	0.715	0.83
B	3.8	3.9	4.0	I	0.18	0.254	0.25
C	5.8	6.0	6.2	J		0.22	
D	0.38	0.445	0.51	K	0°	4°	8°
E		1.27		L			
F	1.35	1.55	1.75	M			
G	0.1	0.175	0.25	N			

