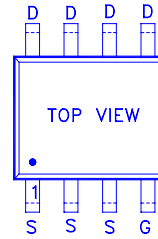
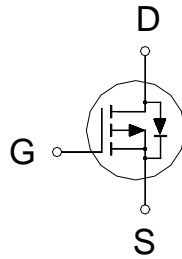


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-40V	55m	-5.5A



4 :GATE  
5,6,7,8 :DRAIN  
1,2,3 :SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		$V_{DS}$	-40	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	-5.5	A
	$T_C = 70\text{ }^\circ\text{C}$		-4.5	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-20	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	2.5	W
	$T_C = 70\text{ }^\circ\text{C}$		1.3	
Operating 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	$R_{\theta JA}$		50	$^\circ\text{C} / \text{W}$

<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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu\text{A}$	-40			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	-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	$I_{DSS}$	$V_{DS} = -32V, V_{GS} = 0V$			1	$\mu\text{A}$
		$V_{DS} = -30V, V_{GS} = 0V, T_J = 125\text{ }^\circ\text{C}$			10	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -10V$	-20			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = -4.5V, I_D = -4.5A$		65	94	m
		$V_{GS} = -10V, I_D = -5.5A$		38	55	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = -10V, I_D = -5.5A$		11		S

DYNAMIC						
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$		690		pF
Output Capacitance	$C_{oss}$			310		
Reverse Transfer Capacitance	$C_{rss}$			75		
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -10V,$ $I_D = -5.5A$		14		nC
Gate-Source Charge <sup>2</sup>	$Q_{gs}$			2.2		
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$			1.9		
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DS} = -20V,$ $I_D \cong -1A, V_{GS} = -10V, R_{GS} = 6$		6.7	13.4	nS
Rise Time <sup>2</sup>	$t_r$			9.7	19.4	
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			19.8	35.6	
Fall Time <sup>2</sup>	$t_f$			12.3	22.2	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ( $T_c = 25^\circ C$ )						
Continuous Current	$I_S$				-1.3	A
Pulsed Current <sup>3</sup>	$I_{SM}$				-2.6	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = I_S, V_{GS} = 0V$			-1	V
Reverse Recovery Time	$t_{rr}$	$I_F = -5 A, di_F/dt = 100A / \mu S$		15.5		nS
Reverse Recovery Charge	$Q_{rr}$			7.9		nC

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

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

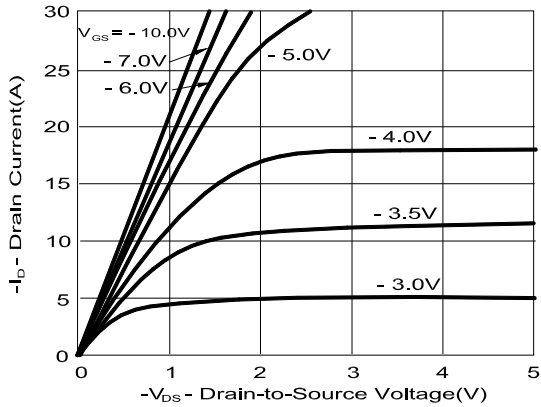
<sup>3</sup>Pulse width limited by maximum junction temperature.

**REMARK: THE PRODUCT MARKED WITH "P5504EVG", DATE CODE or LOT #**

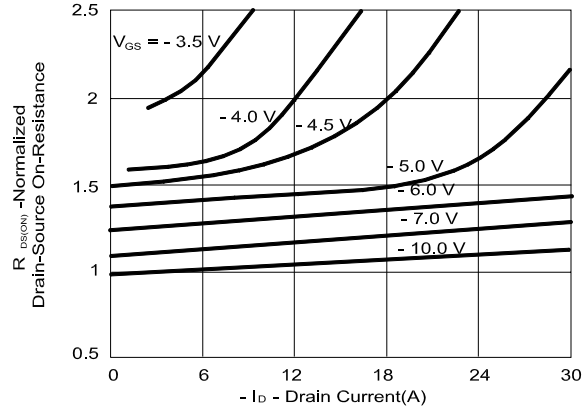
**Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.**

**TYPICAL PERFORMANCE CHARACTERISTICS**

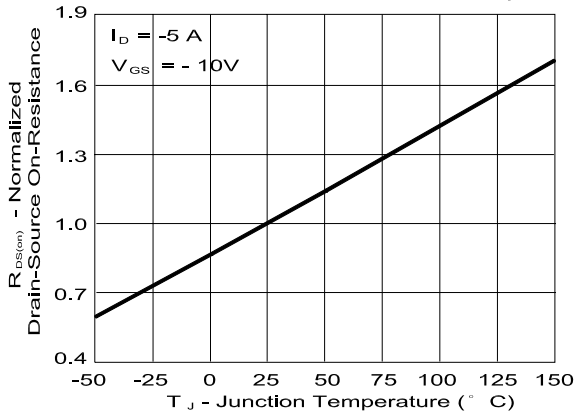
On-Region Characteristics



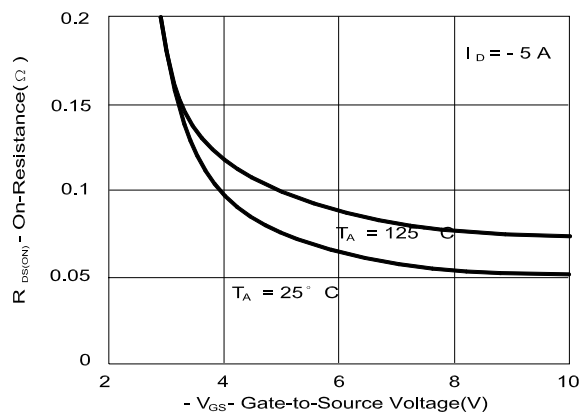
On-Resistance Variation with Drain Current and Gate Voltage



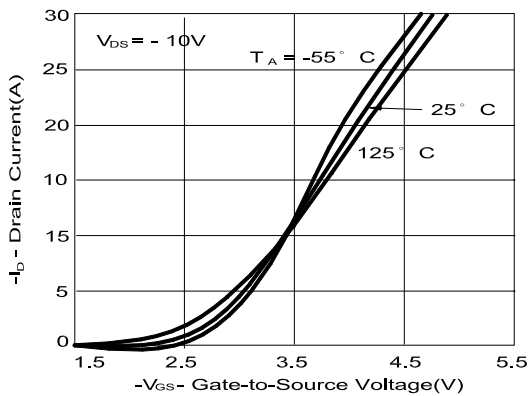
On-Resistance Variation with Temperature



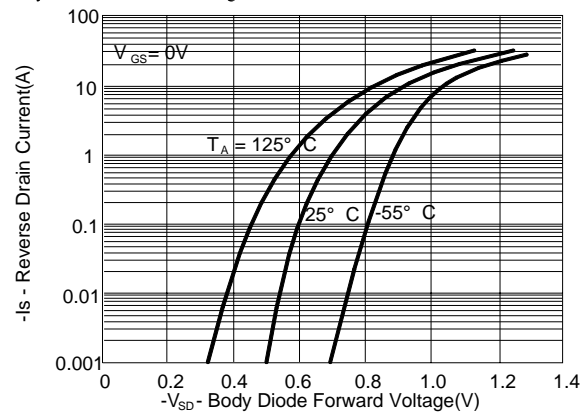
On-Resistance Variation with Gate-to-Source Voltage

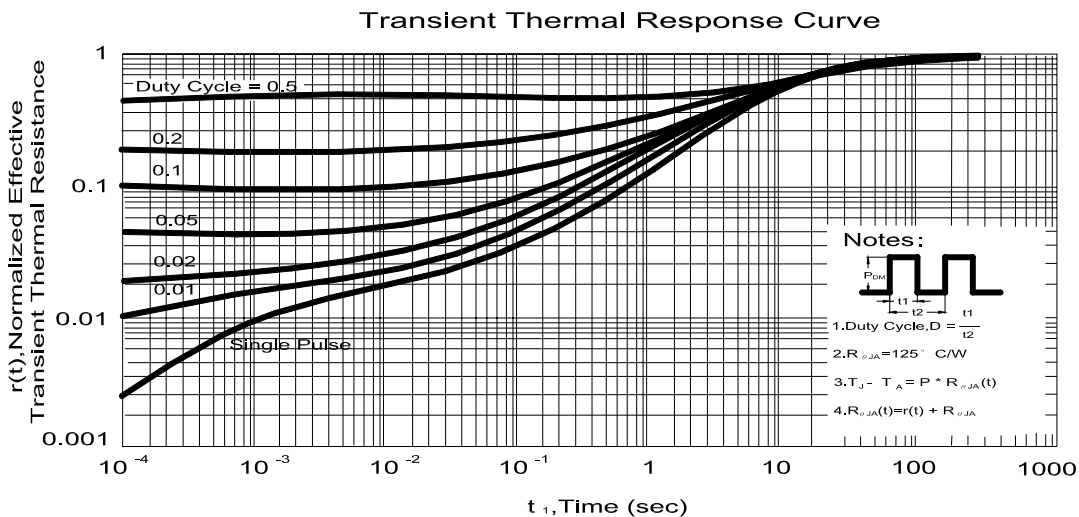
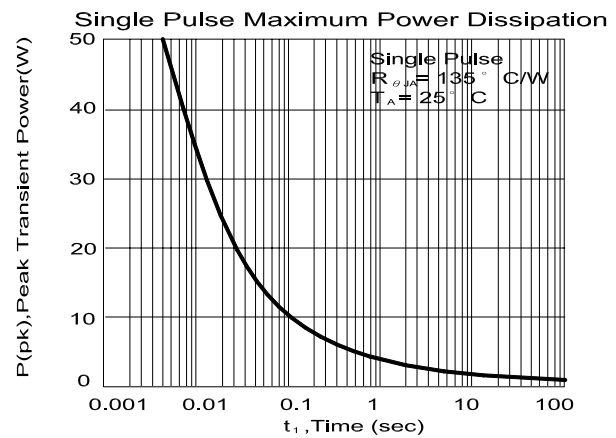
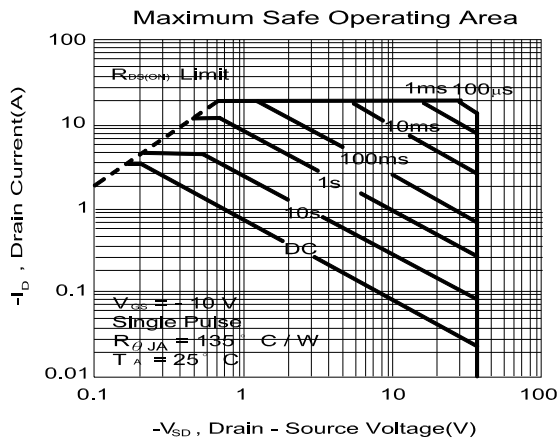
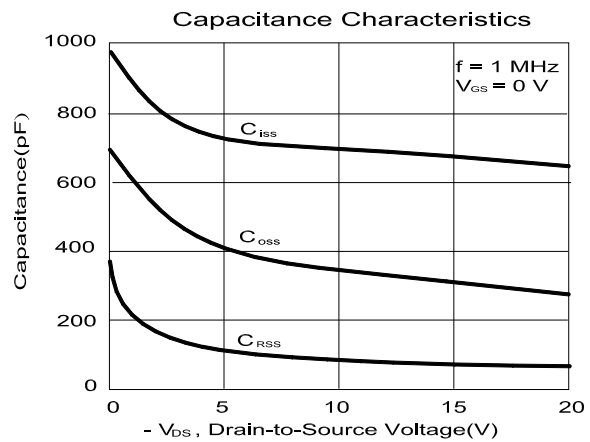
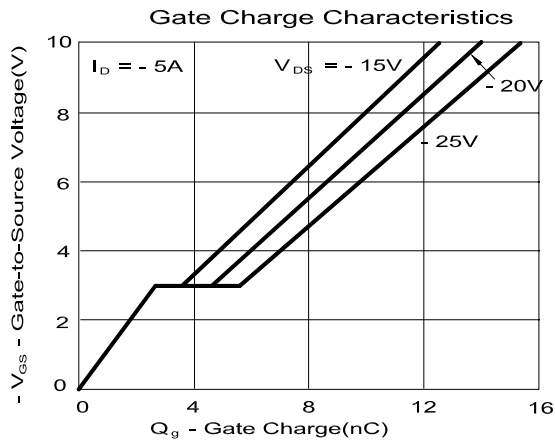


Transfer Characteristics



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			

