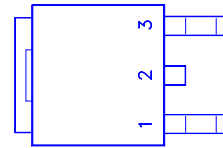
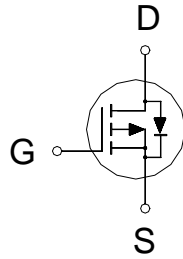


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
-20	115m	-10A



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	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	-10	A
	$T_C = 70\text{ }^\circ\text{C}$		-6.2	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	-24	
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	25	W
	$T_C = 70\text{ }^\circ\text{C}$		9.6	
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-Case	$R_{\theta JC}$		5	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		110	

<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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.45	-0.8	-1.2	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0V, V_{GS} = \pm 12V$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -16V, V_{GS} = 0V$			-1	$\mu A$
		$V_{DS} = -13.2V, V_{GS} = 0V, T_j = 125\text{ }^\circ\text{C}$			-10	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -4.5V$	-24			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = -2.5V, I_D = -2A$		124	180	m
		$V_{GS} = -4.5V, I_D = -3A$		93	115	
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = -5V, I_D = -3A$		4.4		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>	$Q_g$	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = -4.5V,$ $I_D = -3A$		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>	$t_{d(on)}$	$V_{DD} = -10V$ $I_D \cong -1A, V_{GS} = -5V, R_G = 6$			25	nS
Rise Time <sup>2</sup>	$t_r$				60	
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$				70	
Fall Time <sup>2</sup>	$t_f$				60	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ( $T_C = 25^\circ C$ )						
Continuous Current	$I_S$				-10	A
Pulsed Current <sup>3</sup>	$I_{SM}$				-24	
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = -10A, V_{GS} = 0V$			-1.2	V

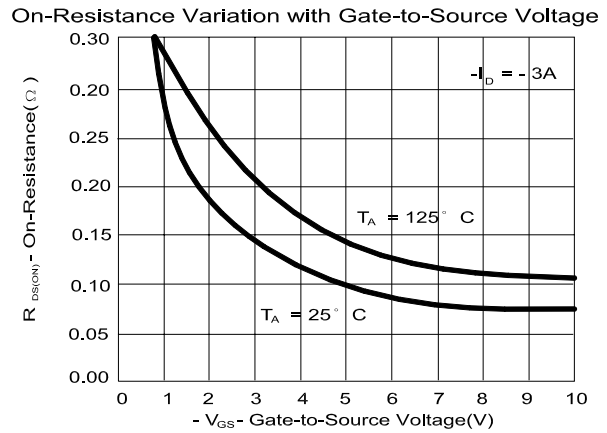
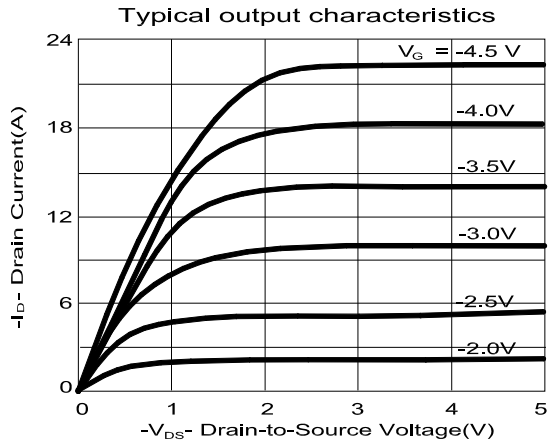
<sup>1</sup>Pulse test : Pulse Width  $\leq 300 \mu sec$ , Duty Cycle  $\leq 2\%$ .

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

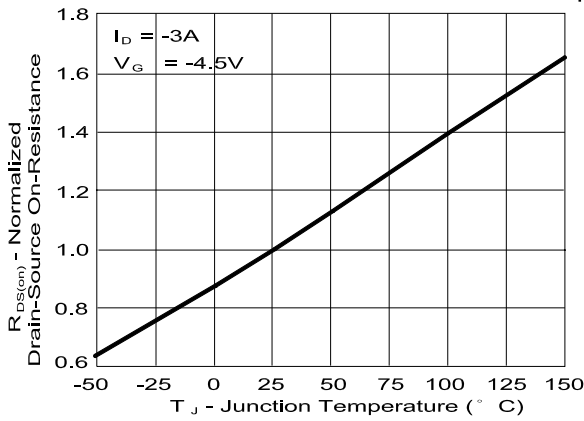
<sup>3</sup>Pulse width limited by maximum junction temperature.

**REMARK: THE PRODUCT MARKED WITH PA102FDG, DATE CODE or LOT #**

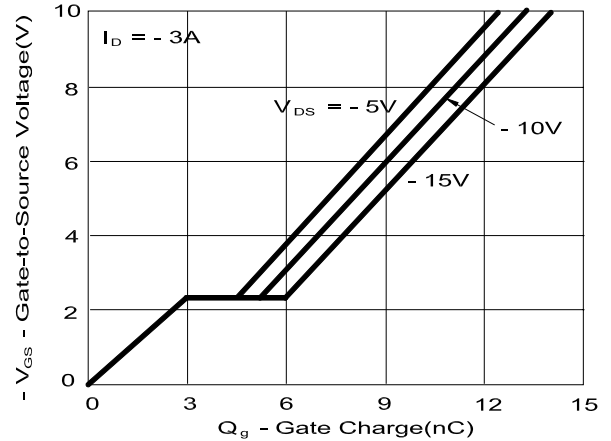
**Orders for parts with Lead-Free plating can be placed using the PXXXXXXG parts name.**



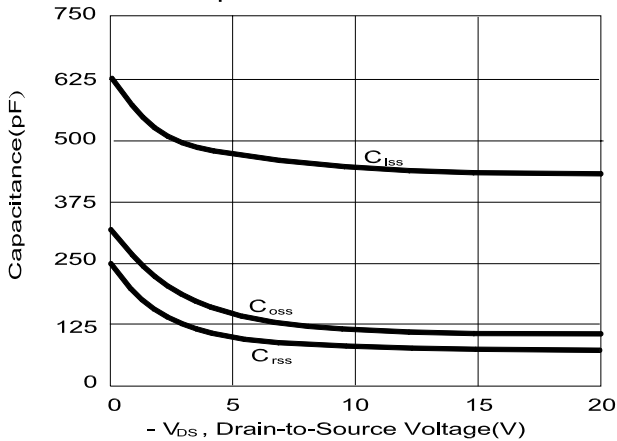
**Normalized on-Resistance v.s. Junction Temperature**



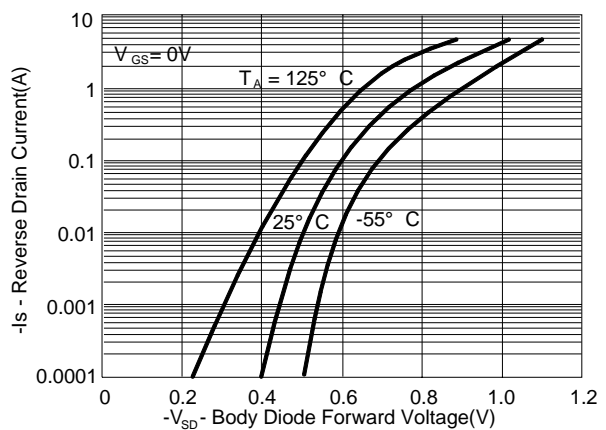
**Gate Charge Characteristics**

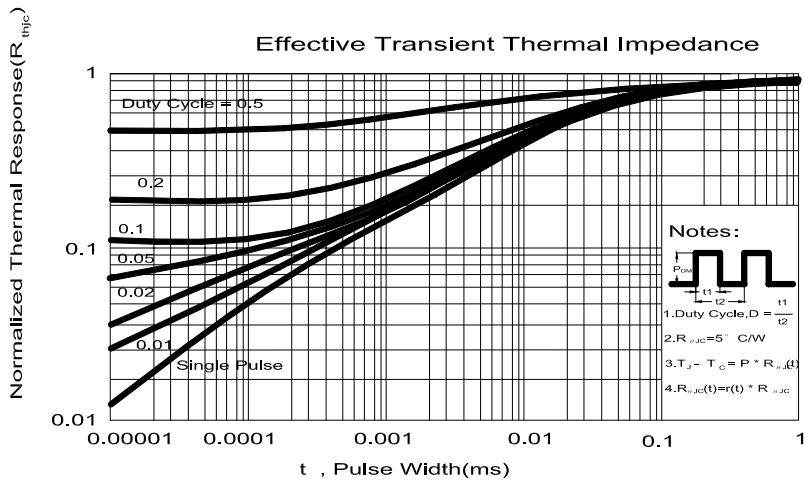
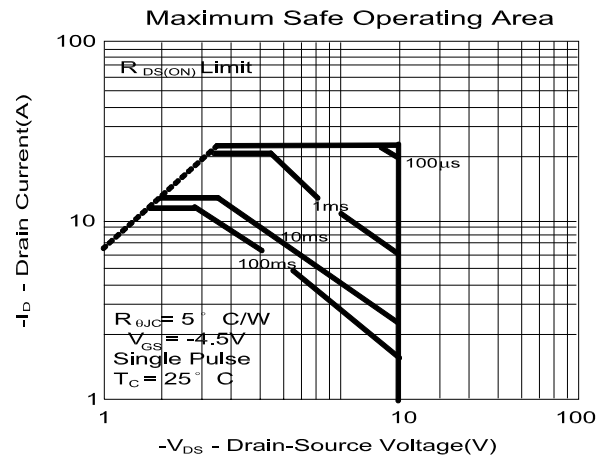
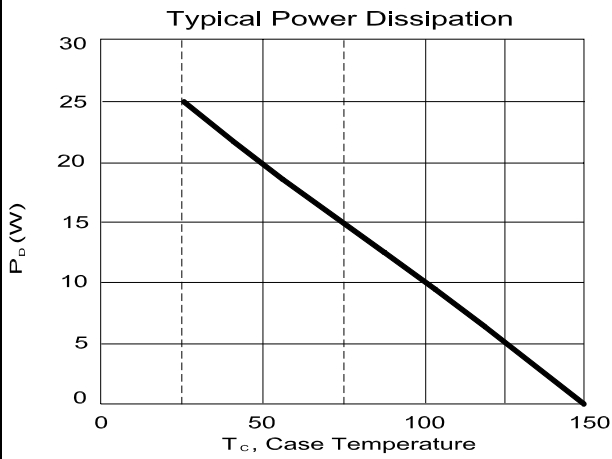
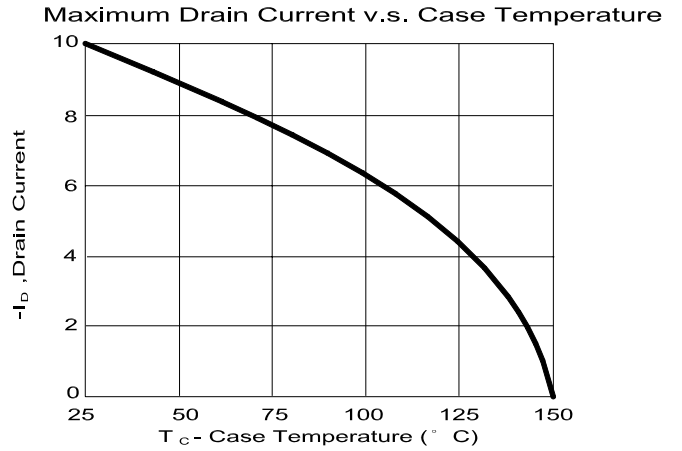
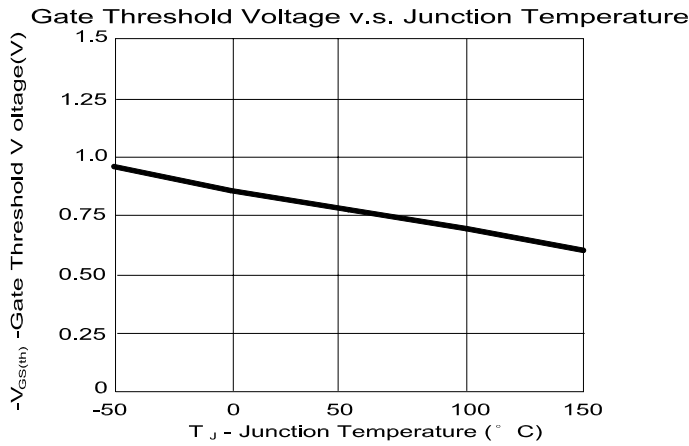


**Capacitance Characteristics**



**Body Diode Forward Voltage Variation with Source Current and Temperature**





**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			

