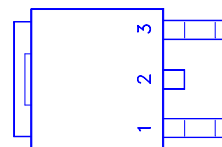
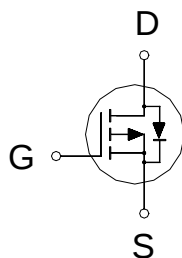


PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20	115m Ω	-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}	± 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 ¹		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	

¹Pulse width limited by maximum junction temperature.

²Duty cycle $\leq 1\%$

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
STATIC						
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}	$V_{DS} = 0V, V_{GS} = \pm 12V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -13.2V, V_{GS} = 0V, T_J = 125\text{ }^{\circ}C$			-10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = -5V, V_{GS} = -4.5V$	-24			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -2.5V, I_D = -2A$		124	180	mΩ
		$V_{GS} = -4.5V, I_D = -3A$		93	115	
Forward Transconductance ¹	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 ²	Q _g	V _{DS} = 0.5V _{(BR)DSS} , V _{GS} = -4.5V, I _D = -3A		7.6	10	nC
Gate-Source Charge ²	Q _{gs}			3.2		
Gate-Drain Charge ²	Q _{gd}			2		
Turn-On Delay Time ²	t _{d(on)}	V _{DD} = -10V I _D ≅ -1A, V _{GS} = -5V, R _G = 6Ω			25	nS
Rise Time ²	t _r				60	
Turn-Off Delay Time ²	t _{d(off)}				70	
Fall Time ²	t _f				60	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T _C = 25 °C)						
Continuous Current	I _S				-10	A
Pulsed Current ³	I _{SM}				-24	
Forward Voltage ¹	V _{SD}	I _F = -10A, V _{GS} = 0V			-1.2	V

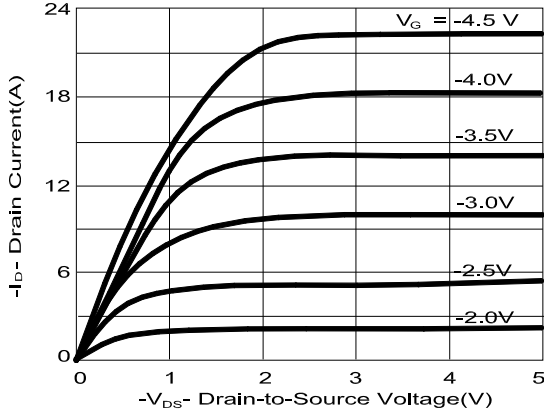
¹Pulse test : Pulse Width $\leq 300 \mu sec$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

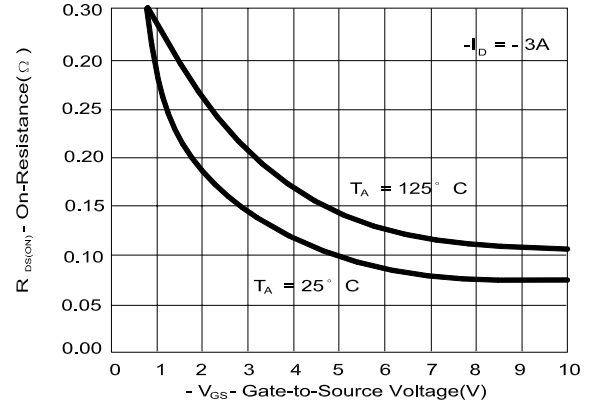
³Pulse width limited by maximum junction temperature.

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.

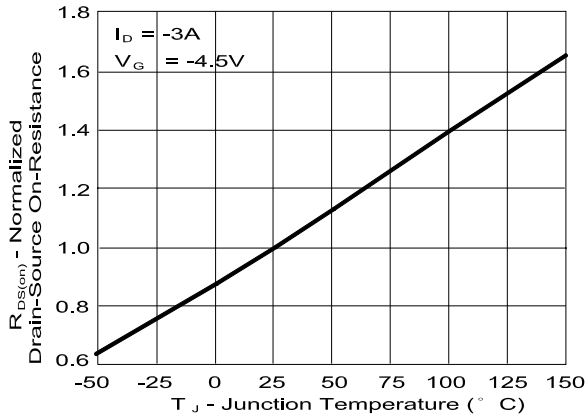
Typical output characteristics



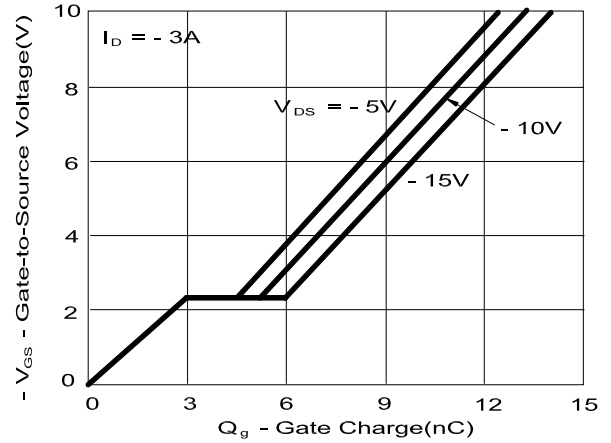
On-Resistance Variation with Gate-to-Source Voltage



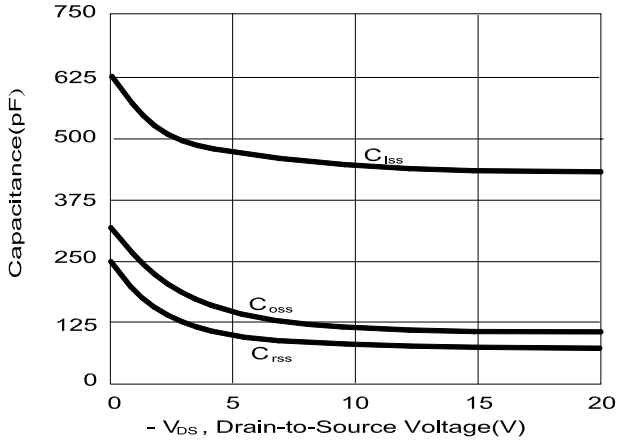
Normalized on-Resistance v.s. Junction Temperature



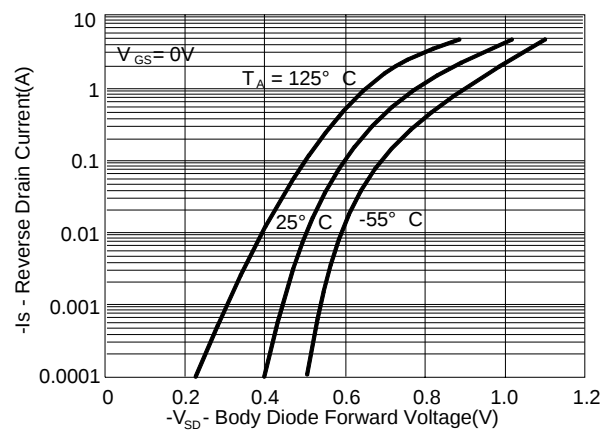
Gate Charge Characteristics



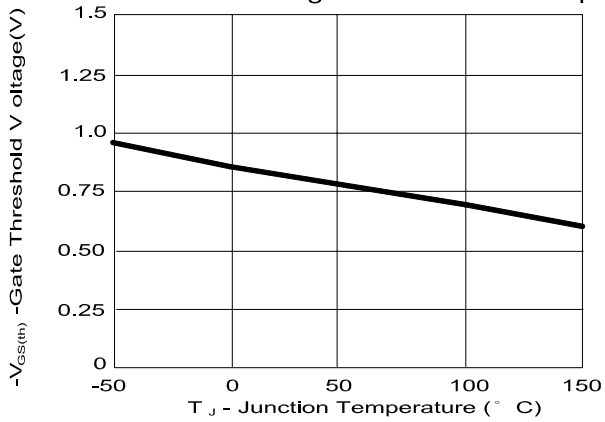
Capacitance Characteristics



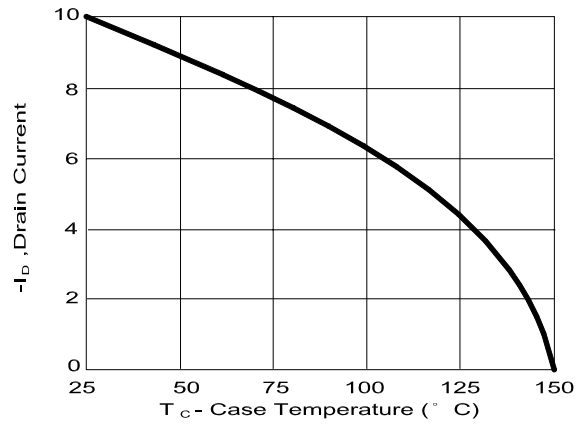
Body Diode Forward Voltage Variation with Source Current and Temperature



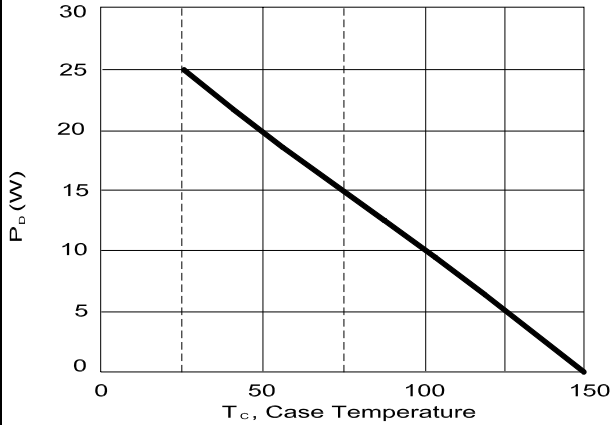
Gate Threshold Voltage v.s. Junction Temperature



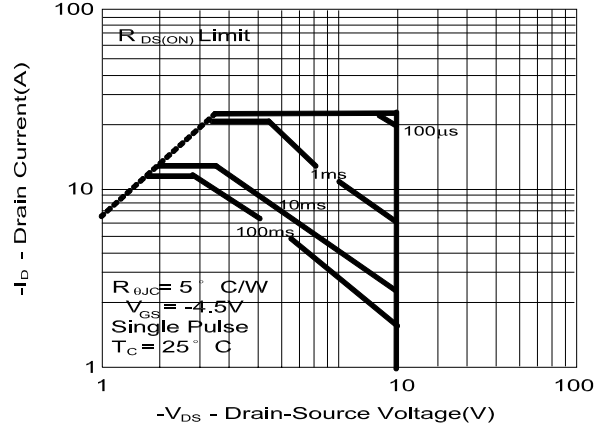
Maximum Drain Current v.s. Case Temperature



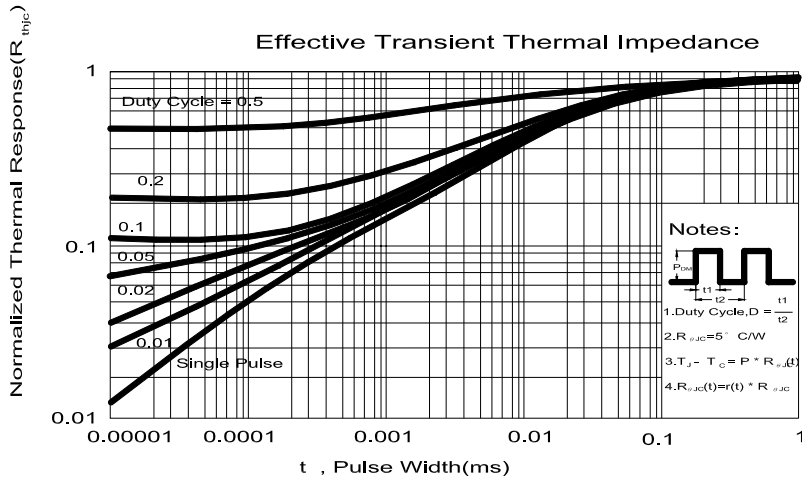
Typical Power Dissipation



Maximum Safe Operating Area



Effective Transient Thermal Impedance



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			

