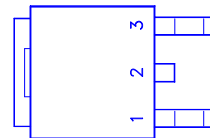
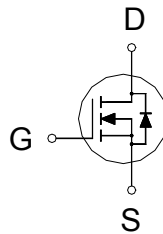


**PRODUCT SUMMARY**

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
100	160m $\Omega$	12A



- 1. GATE
- 2. DRAIN
- 3. SOURCE

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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$T_C = 25\text{ }^\circ\text{C}$	$I_D$	12	A
	$T_C = 100\text{ }^\circ\text{C}$		7	
Pulsed Drain Current <sup>1</sup>		$I_{DM}$	40	
Avalanche Current		$I_{AS}$	24	
Avalanche Energy	$L = 0.1\text{mH}$	$E_{AS}$	29	mJ
Power Dissipation	$T_C = 25\text{ }^\circ\text{C}$	$P_D$	42	W
	$T_C = 100\text{ }^\circ\text{C}$		17	
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	$R_{\theta JC}$		3	$^\circ\text{C} / \text{W}$
Junction-to-Ambient	$R_{\theta JA}$		62.5	

<sup>1</sup>Pulse width limited by maximum junction temperature.

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

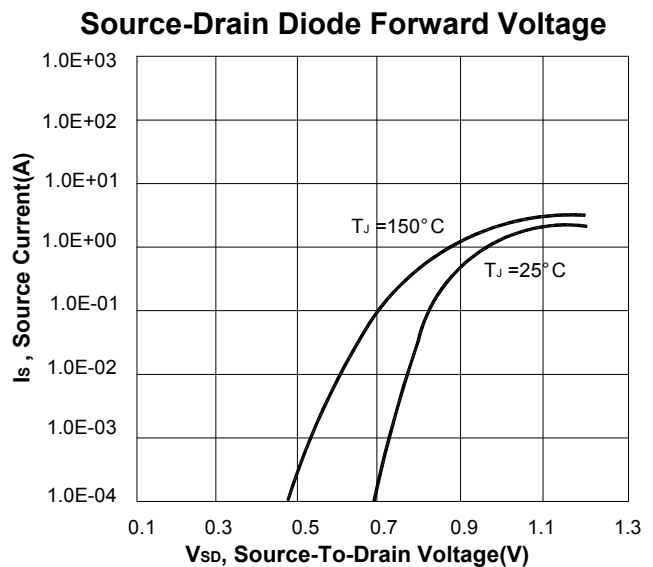
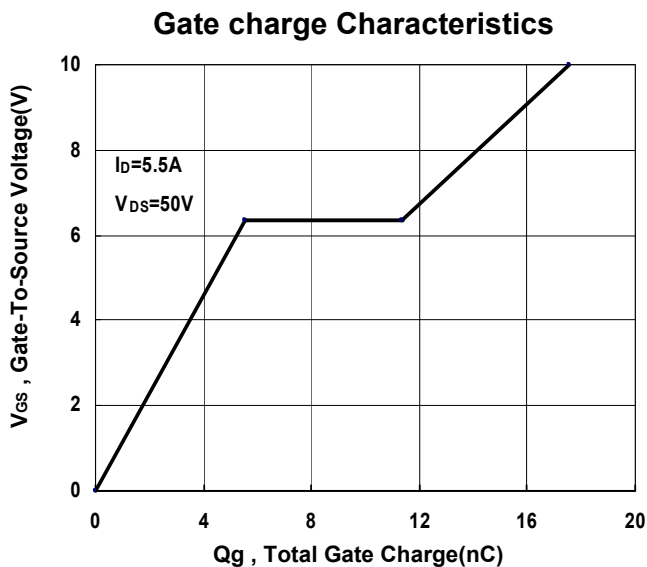
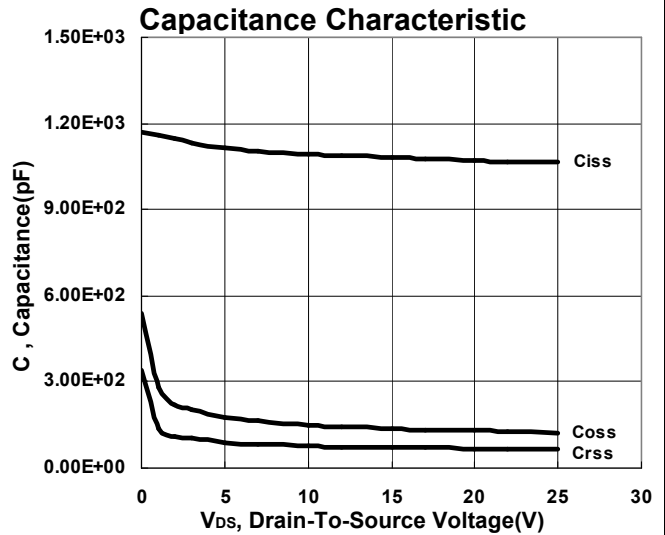
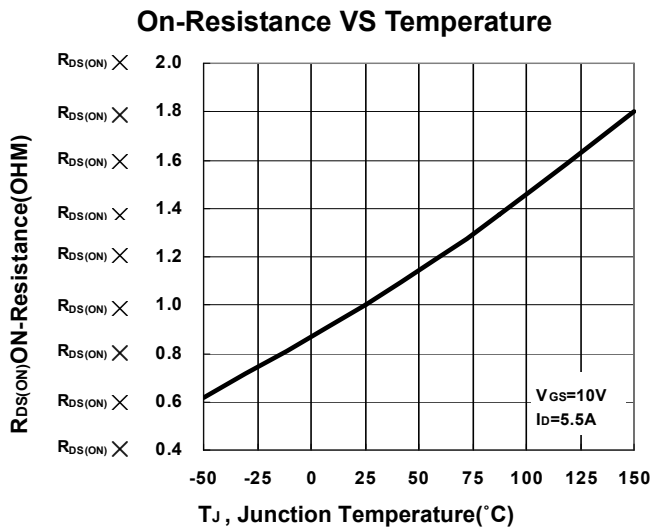
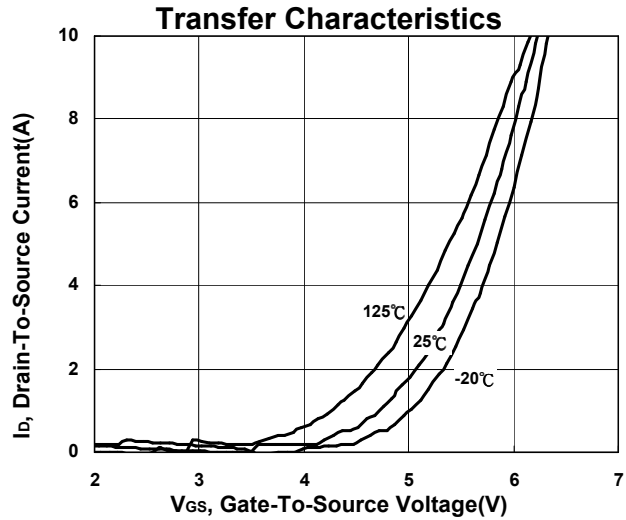
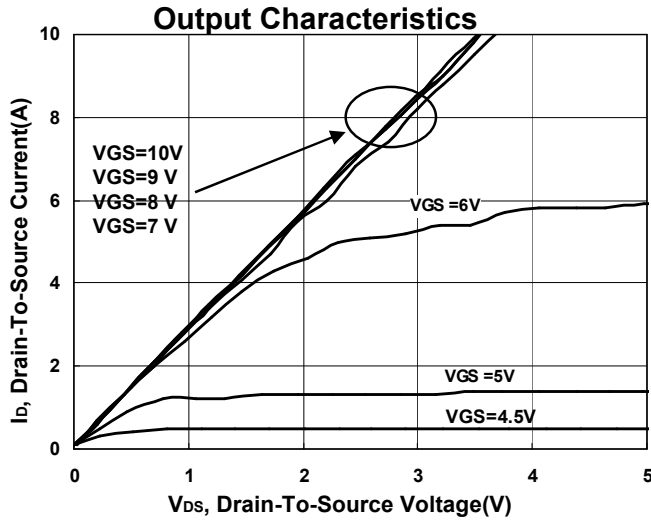
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNIT
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$	100			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	2.0	3.2	4.0	
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{V}, V_{GS} = \pm 20\text{V}$			$\pm 250$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 80\text{V}, V_{GS} = 0\text{V}$			1	$\mu\text{A}$
		$V_{DS} = 66\text{V}, V_{GS} = 0\text{V}, T_J = 125\text{ }^\circ\text{C}$			10	
On-State Drain Current <sup>1</sup>	$I_{D(ON)}$	$V_{DS} = 10\text{V}, V_{GS} = 10\text{V}$	40			A
Drain-Source On-State Resistance <sup>1</sup>	$R_{DS(ON)}$	$V_{GS} = 10\text{V}, I_D = 5.5\text{A}$		145	160	m $\Omega$
Forward Transconductance <sup>1</sup>	$g_{fs}$	$V_{DS} = 10\text{V}, I_D = 5.5\text{A}$		2		S

DYNAMIC					
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		1060	pF
Output Capacitance	$C_{oss}$			124	
Reverse Transfer Capacitance	$C_{rss}$			64	
Total Gate Charge <sup>2</sup>	$Q_g$	$V_{DS} = 50V, V_{GS} = 10V,$ $I_D = 5.5A$		18	nC
Gate-Source Charge <sup>2</sup>	$Q_{gs}$			5	
Gate-Drain Charge <sup>2</sup>	$Q_{gd}$			6	
Turn-On Delay Time <sup>2</sup>	$t_{d(on)}$	$V_{DD} = 50V,$ $I_D \cong 5.5A, V_{GS} = 10V, R_{GS} = 25\Omega$		10	nS
Rise Time <sup>2</sup>	$t_r$			40	
Turn-Off Delay Time <sup>2</sup>	$t_{d(off)}$			30	
Fall Time <sup>2</sup>	$t_f$			28	
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ( $T_J = 25\text{ }^\circ\text{C}$ )					
Continuous Current	$I_S$			12	A
Forward Voltage <sup>1</sup>	$V_{SD}$	$I_F = 5.5A, V_{GS} = 0V$		1.2	V
Reverse Recovery Time	$t_{rr}$	$I_F = 5.5A, dI_F/dt = 100A / \mu S$		92	nS
Reverse Recovery Charge	$Q_{rr}$			280	nC

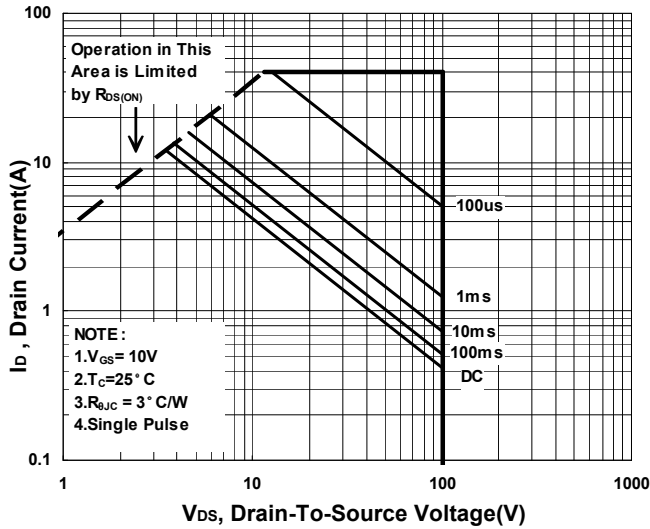
<sup>1</sup>Pulse test : Pulse Width  $\leq 300\ \mu\text{sec}$ , Duty Cycle  $\leq 2\%$ .

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

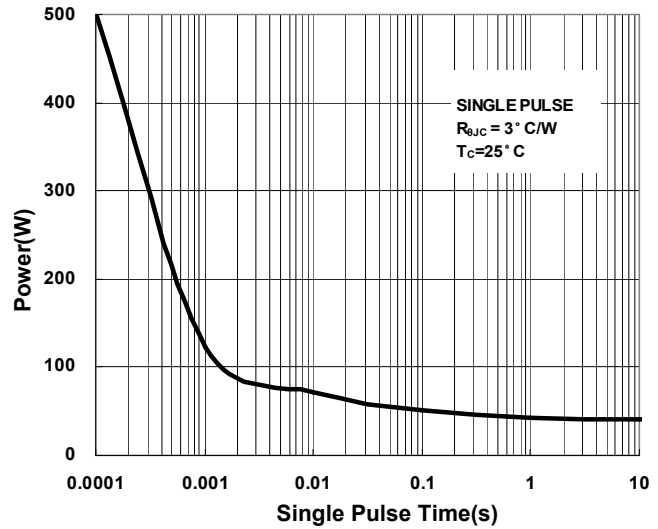
**REMARK: THE PRODUCT MARKED WITH "PA610AD", DATE CODE or LOT #**



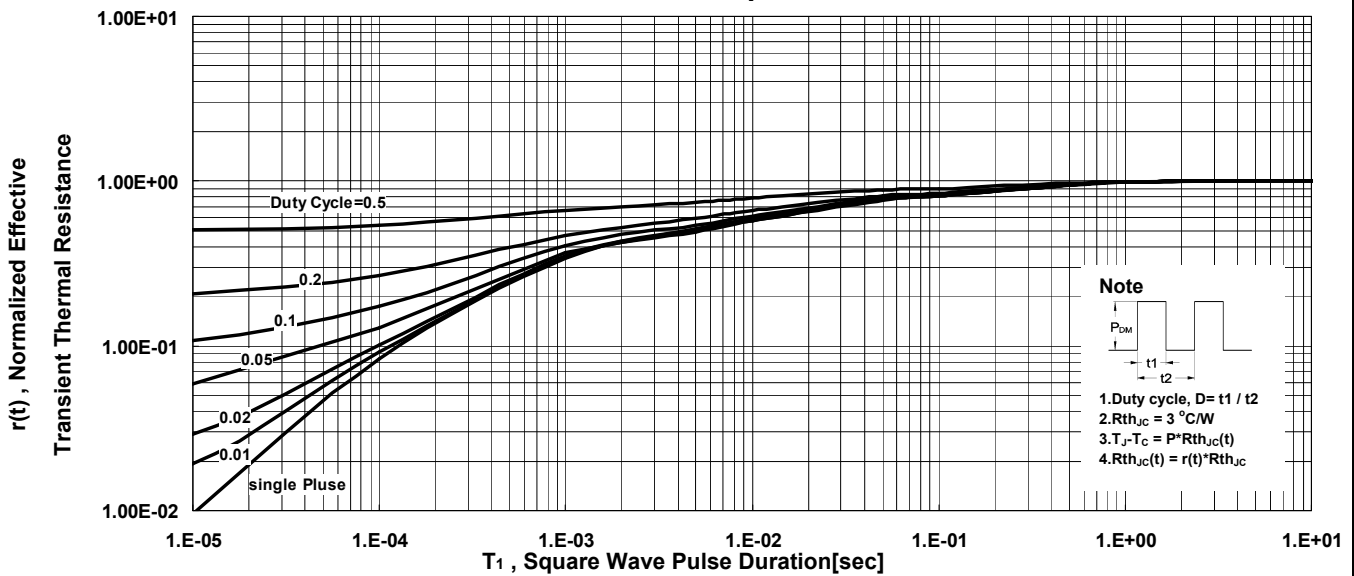
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



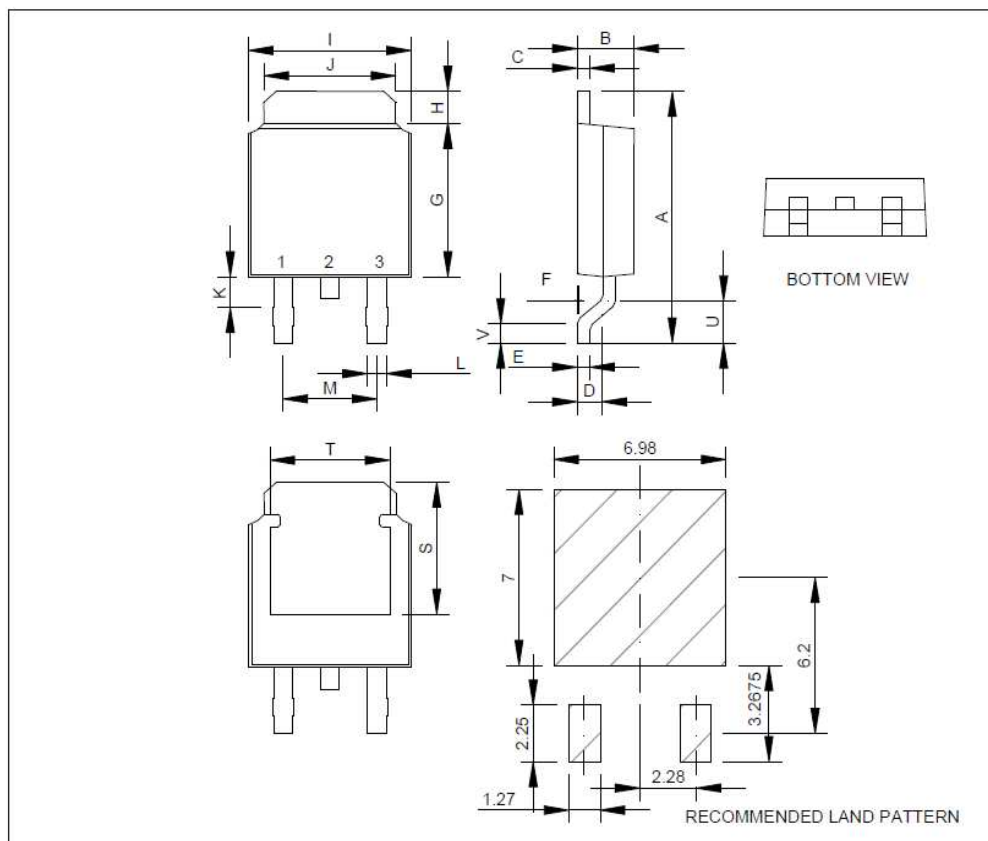
**Transient Thermal Response Curve**



**Package Dimension**

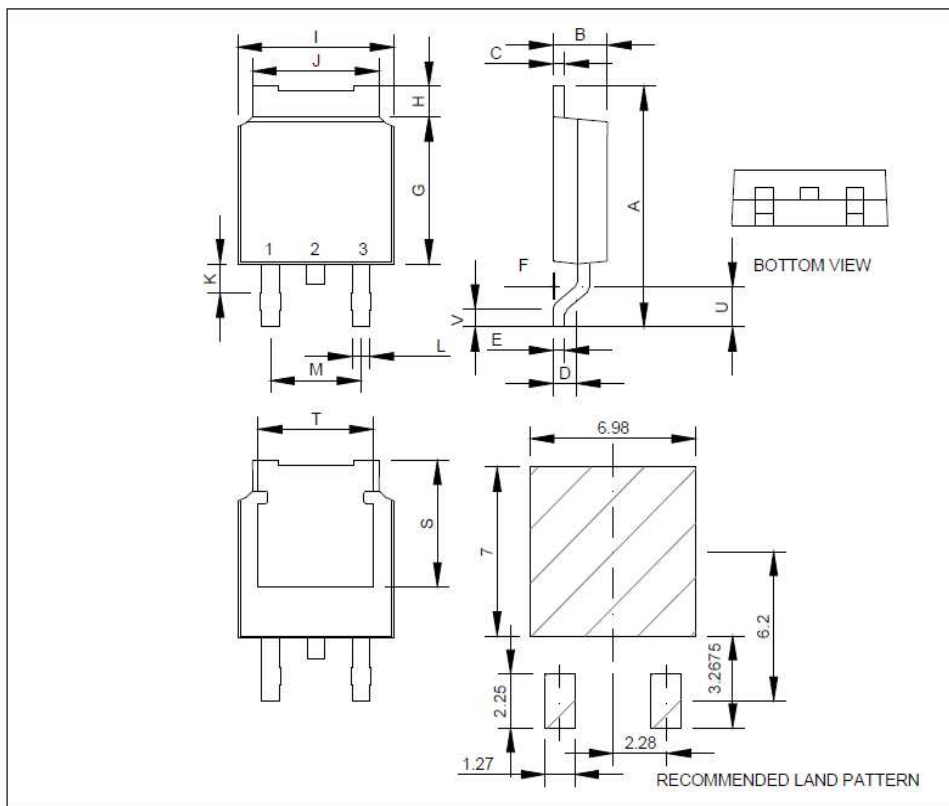
**TO-252 (DPAK) MECHANICAL DATA**

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.2		10.2	J	4.8		5.5
B	2.1		2.5	K	0.5		1.1
C	0.4		0.6	L	0.30		0.889
D	1.1		1.3	M	4.58		4.8
E		0.508		S	4.57		5.515
F	0		0.3	T	3.81		5.0
G	5.3		6.2	U	1.4		1.77
H	1.1		1.7	V	0.86		1.5
I	6.3		6.8				



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

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	8.9	9.5	10.4	J	5.04	5.34	5.64
B	2.2	2.3	2.4	K	0.6		1.0
C	0.4	0.5	0.6	L	0.66	0.76	0.86
D	0.82	1.02	1.22	M	4.372	4.572	4.772
E	0.4	0.5	0.6	S	5.25		
F	0		0.1	T	4.7		5.24
G	5.9	6.1	6.3	U	1.34		1.7
H	0.5		1.25	V	0.55		0.95
I	6.4	6.6	6.8				



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

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	9.65		10.41	J	5.21		5.46
B	2.19		2.38	K	0.64		1.01
C	0.46		0.64	L	0.64		0.89
E	0.51			M		4.58	
F			0.13	S	5.21		
G	5.97		6.22	T	4.83		
H	0.89		1.27	U	1.4		1.78
I	6.35		6.73	V	0.75		1.00

