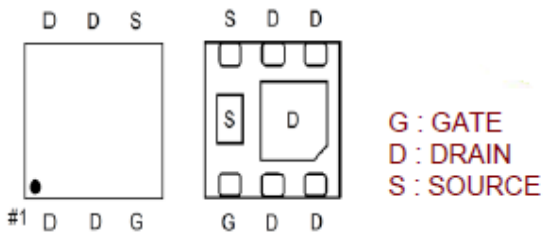


# PB600BA

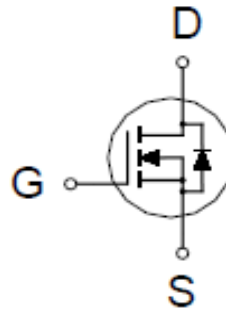
## N-Channel Enhancement Mode MOSFET

### PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	$I_D$
30V	12m $\Omega$ @ $V_{GS} = 10V$	9A



PDFN 2X2S



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

PARAMETERS/TEST CONDITIONS	SYMBOL	LIMITS	UNITS
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>2</sup>	$I_D$	$T_A = 25\text{ }^\circ\text{C}$	A
		$T_A = 70\text{ }^\circ\text{C}$	
Pulsed Drain Current <sup>1</sup>	$I_{DM}$	27	
Avalanche Current	$I_{AS}$	12.6	
Avalanche Energy	$E_{AS}$	7.9	mJ
Power Dissipation	$P_D$	$T_A = 25\text{ }^\circ\text{C}$	W
		$T_A = 70\text{ }^\circ\text{C}$	
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-Ambient <sup>2</sup>	$R_{\theta JA}$		71.7	$^\circ\text{C} / \text{W}$

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

<sup>2</sup>The value of  $R_{\theta JA}$  is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Coppe.

## PB600BA

### N-Channel Enhancement Mode MOSFET

#### ELECTRICAL CHARACTERISTICS (T<sub>J</sub> = 25 °C, Unless Otherwise Noted)

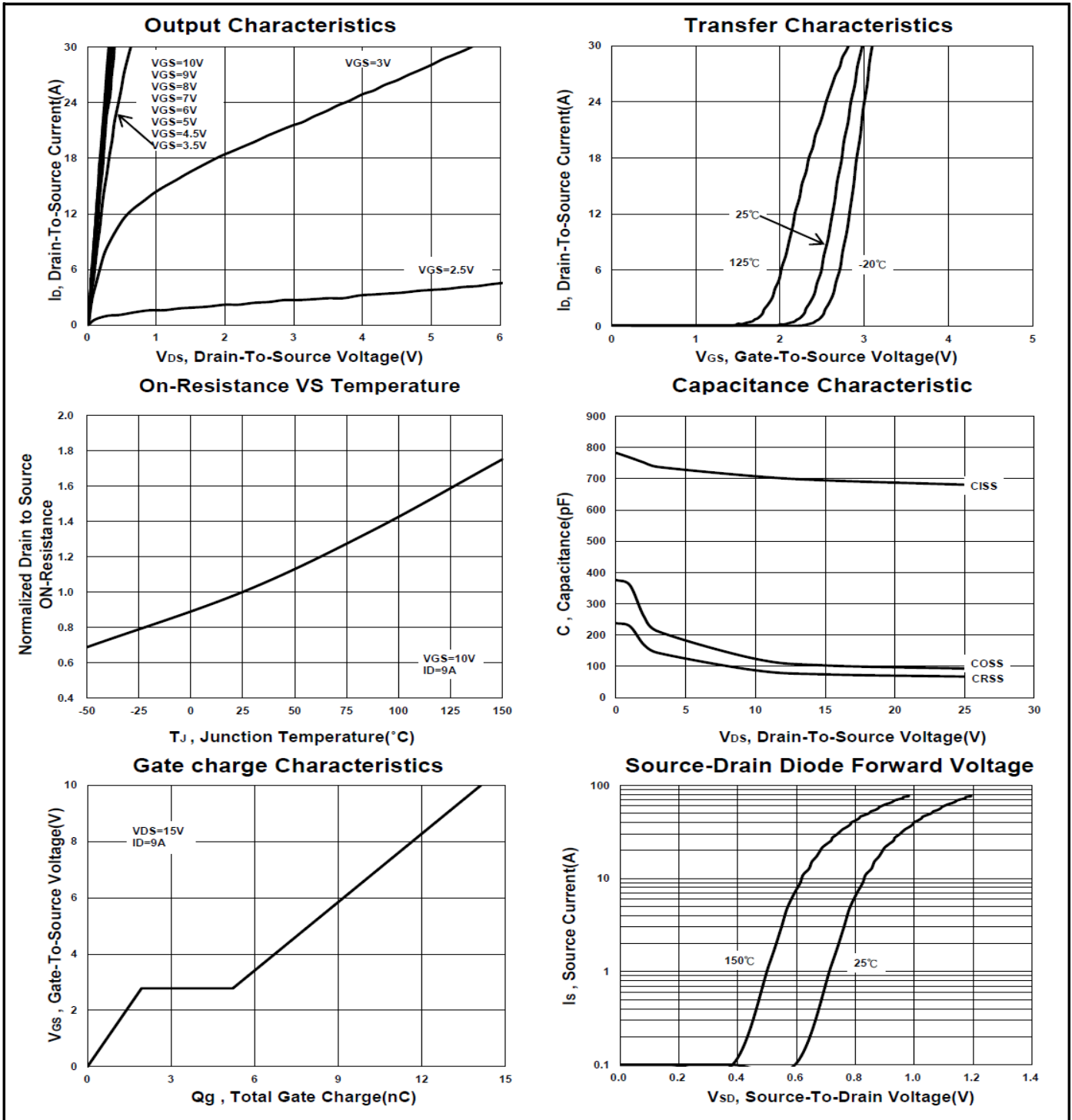
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0V, I <sub>D</sub> = 250μA	30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250μA	1.3	1.7	2.5	
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0V, V <sub>GS</sub> = ±20V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24V, V <sub>GS</sub> = 0V			1	μA
		V <sub>DS</sub> = 20V, V <sub>GS</sub> = 0V, T <sub>J</sub> = 55°C			10	
Drain-Source On-State Resistance <sup>1</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> = 4.5V, I <sub>D</sub> = 9A		11	17.5	mΩ
		V <sub>GS</sub> = 10V, I <sub>D</sub> = 9A		9	12	
Forward Transconductance <sup>1</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 10V, I <sub>D</sub> = 9A		45		S
<b>DYNAMIC</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 15V, f = 1MHz		706		pF
Output Capacitance	C <sub>oss</sub>			103		
Reverse Transfer Capacitance	C <sub>riss</sub>			74		
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> = 0V, V <sub>DS</sub> = 0V, f = 1MHz		3.1		Ω
Total Gate Charge <sup>2</sup>	Q <sub>g(VGS=10V)</sub>	V <sub>DS</sub> = 15V, I <sub>D</sub> = 9A		15		nC
	Q <sub>g(VGS=4.5V)</sub>			8		
Gate-Source Charge <sup>2</sup>	Q <sub>gs</sub>			2.6		
Gate-Drain Charge <sup>2</sup>	Q <sub>gd</sub>			3.6		
Turn-On Delay Time <sup>2</sup>	t <sub>d(on)</sub>		V <sub>DD</sub> = 15V I <sub>D</sub> ≅ 9A, V <sub>GEN</sub> = 10V, R <sub>G</sub> = 6Ω		13	
Rise Time <sup>2</sup>	t <sub>r</sub>			37		
Turn-Off Delay Time <sup>2</sup>	t <sub>d(off)</sub>			48		
Fall Time <sup>2</sup>	t <sub>f</sub>			25		
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T<sub>J</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				1.5	A
Forward Voltage <sup>1</sup>	V <sub>SD</sub>	I <sub>F</sub> = 9A, V <sub>GS</sub> = 0V			1.1	V
Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 9A, dI <sub>F</sub> /dt = 100A / μS		11		nS
Reverse Recovery Charge	Q <sub>rr</sub>			3		nC

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

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

# PB600BA

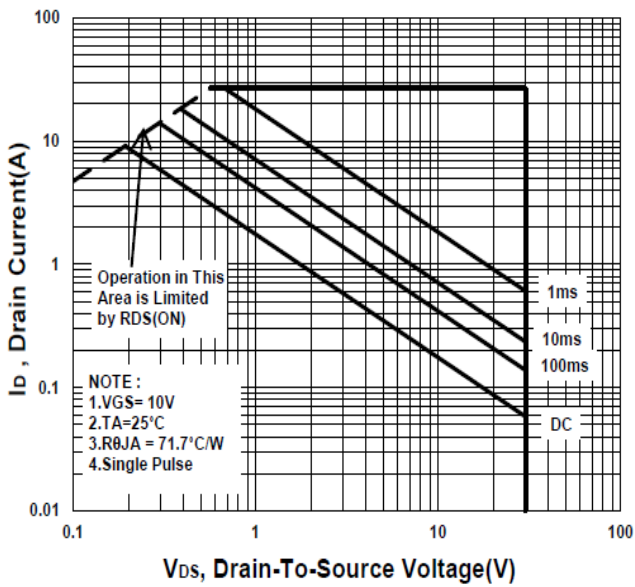
## N-Channel Enhancement Mode MOSFET



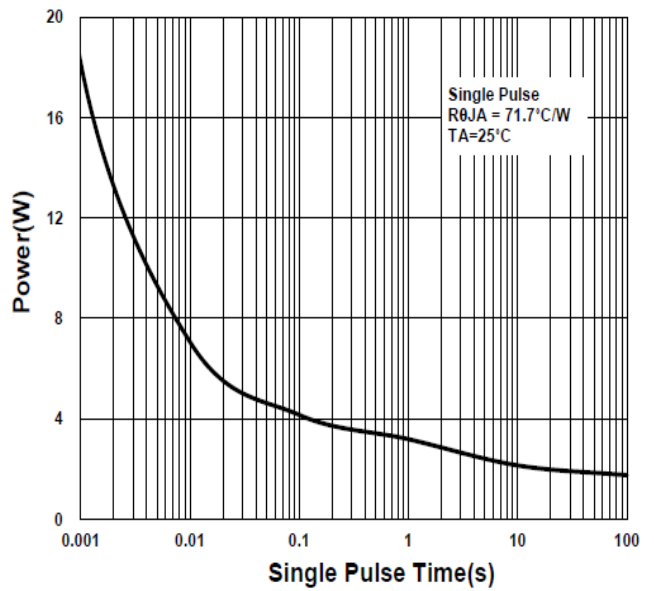
# PB600BA

## N-Channel Enhancement Mode MOSFET

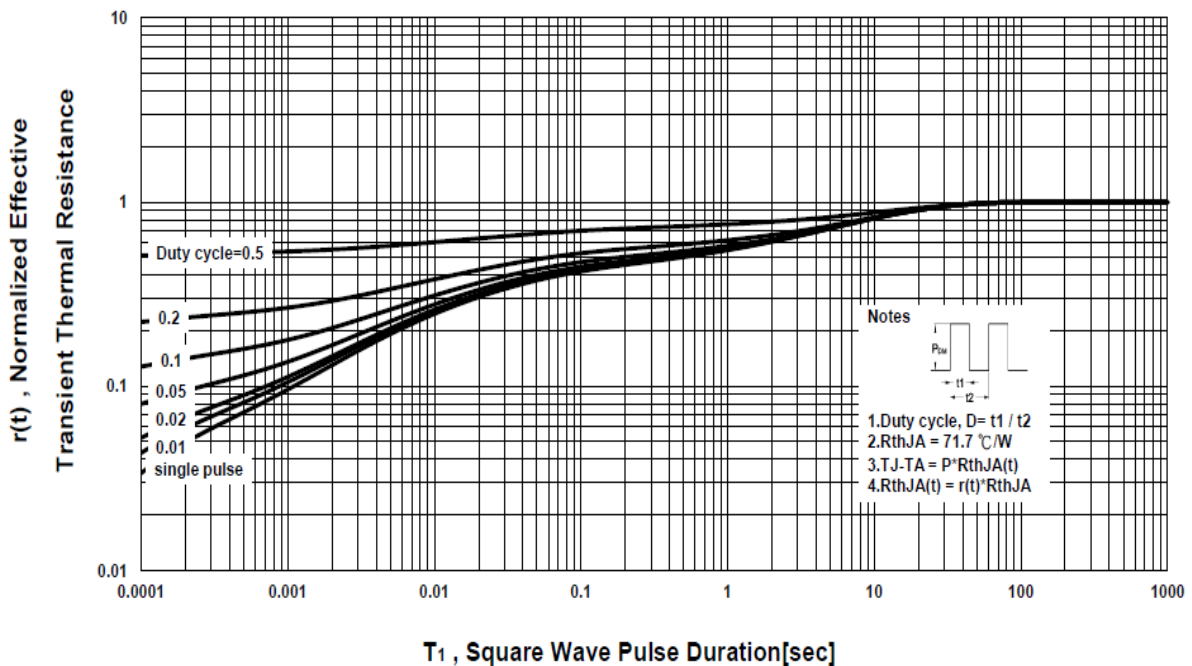
**Safe Operating Area**



**Single Pulse Maximum Power Dissipation**



**Transient Thermal Response Curve**



# PB600BA

## N-Channel Enhancement Mode MOSFET

### Package Dimension

### PDFN 2x2S MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	1.9		2.1	H	0.8		1.1
B	1.9		2.1	I	0		0.05
C	0.55	0.65	0.75	J		0.203	
D	0.85		1.1	K	0.7		0.8
E	0.174	0.25	0.326	L	0.2		0.4
F	0.25		0.35	M	0.46		0.85
G		0.2					

