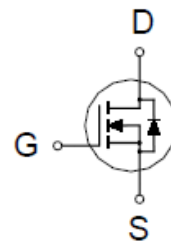


PD1203BEA

N-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
30V	12m Ω @ $V_{GS} = 10V$	11A



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}	± 20		
Continuous Drain Current	I_D	$T_A = 25\text{ }^\circ\text{C}$	11	A
		$T_A = 70\text{ }^\circ\text{C}$	9	
Pulsed Drain Current ¹	I_{DM}	44		
Avalanche Current	I_{AS}	24		
Avalanche Energy	E_{AS}	28	mJ	
Power Dissipation	P_D	$T_A = 25\text{ }^\circ\text{C}$	2.3	W
		$T_A = 70\text{ }^\circ\text{C}$	1.5	
Operating Junction & Storage Temperature Range	T_J, T_{STG}	-55 to 150	$^\circ\text{C}$	

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THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	SYMBOL	TYPICAL	MAXIMUM	UNITS
Junction-to-Ambient ²	$R_{\theta JA}$		55	°C / W

¹Pulse width limited by maximum junction temperature.

²The value of $R_{\theta JA}$ is measured with the device mounted on 1in2 FR-4 board with 2oz.Copper , in a still air environment with $T_A=25^\circ\text{C}$. The value in any given application depends on the user's specific board design.

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

PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1	1.5	3	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 20V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 24V, V_{GS} = 0V$			0.03	mA
		$V_{DS} = 20V, V_{GS} = 0V, T_J = 55^\circ\text{C}$			10	
On-State Drain Current ¹	$I_{D(ON)}$	$V_{DS} = 5V, V_{GS} = 10V$	44			A
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = 4.5V, I_D = 11A$		13	17.5	m Ω
		$V_{GS} = 10V, I_D = 11A$		9	12	
Forward Transconductance ¹	g_{fs}	$V_{DS} = 5V, I_D = 11A$		30		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 15V, f = 1\text{MHz}$		1040		pF
Output Capacitance	C_{oss}			145		
Reverse Transfer Capacitance	C_{rss}			104		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1\text{MHz}$		1.6		Ω
Total Gate Charge ²	$Q_{g(VGS=10V)}$	$V_{DS} = 0.5V_{(BR)DSS}, V_{GS} = 10V, I_D = 11A$		21		nC
	$Q_{g(VGS=4.5V)}$			10		
Gate-Source Charge ²	Q_{gs}			3.5		
Gate-Drain Charge ²	Q_{gd}			5.2		
Turn-On Delay Time ²	$t_{d(on)}$		$V_{DS} = 0.5V_{(BR)DSS}, I_D \cong 11A, V_{GS} = 10V, R_{GEN} = 6\Omega$		10	
Rise Time ²	t_r			4		
Turn-Off Delay Time ²	$t_{d(off)}$			20		
Fall Time ²	t_f			4		

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SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS

Continuous Current ³	I_S			11	A
Diode Forward Voltage ¹	V_{SD}	$I_S = 1A, V_{GS} = 0V$		0.8	V
Reverse Recovery Time	t_{rr}	$I_F = 11A, di_F/dt = 100A / \mu S$		11.7	nS
Reverse Recovery Charge	Q_{rr}			2	nC

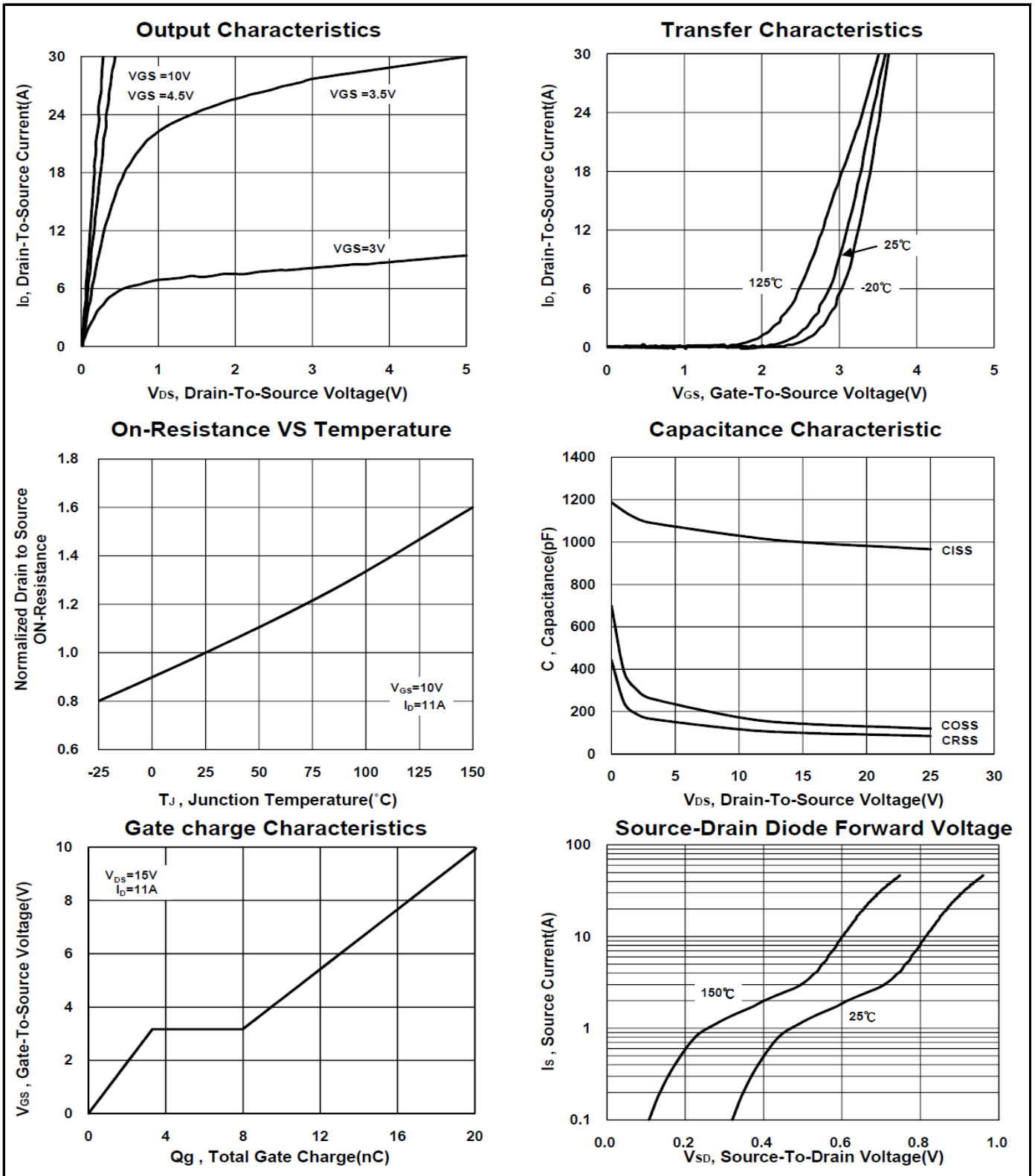
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

³Maximum continuous current include Body diode + Shottky.

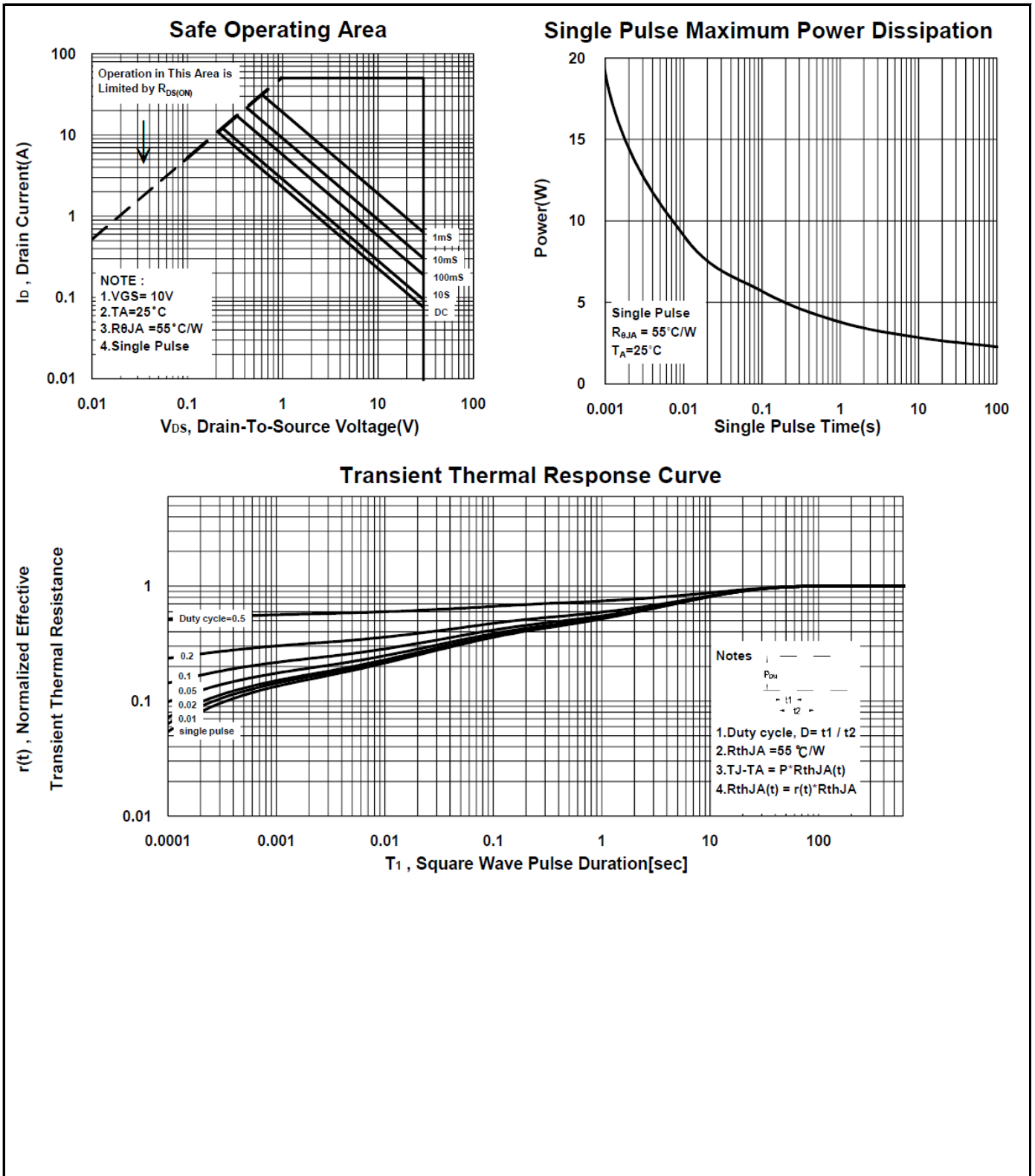
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Package Dimension

PDFN 3x3P MECHANICAL DATA

Dimension	mm			Dimension	mm		
	Min.	Typ.	Max.		Min.	Typ.	Max.
A	3		3.6	I	0.7		1.12
B	2.88		3.2	J	0.1		0.33
C	2.9		3.2	K	0.6		
D	1.98		2.69	L	0°	10°	12°
E	3		3.6	M	0.14		0.41
F	0		0.455	N	0.6		0.7
G	1.47		2.2	O	0.12		0.36
H	0.15		0.56	P	0		0.2

