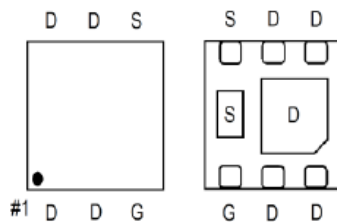


PB521BX

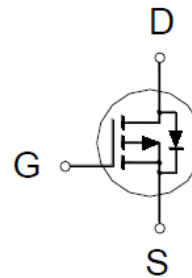
P-Channel Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-20V	21mΩ @ $V_{GS} = -4.5V$	-7.4A



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}	-20	V
Gate-Source Voltage		V_{GS}	±8	
Continuous Drain Current	$T_A = 25\text{ }^{\circ}\text{C}$	I_D	-8	A
	$T_A = 70\text{ }^{\circ}\text{C}$		-6.4	
Pulsed Drain Current ¹		I_{DM}	29	
Power Dissipation	$T_A = 25\text{ }^{\circ}\text{C}$	P_D	2.1	W
	$T_A = 70\text{ }^{\circ}\text{C}$		1.4	
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 ²	$R_{\theta JA}$		57	$^{\circ}\text{C} / \text{W}$

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. Coppe.

PB521BX

P-Channel Enhancement Mode MOSFET

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	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-20			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-0.45	-0.6	-0.85	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 8V$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -16V, V_{GS} = 0V$			-1	μA
		$V_{DS} = -10V, V_{GS} = 0V, T_J = 55^{\circ}C$			-10	
Drain-Source On-State Resistance ¹	$R_{DS(ON)}$	$V_{GS} = -1.8V, I_D = -1A$		24	40	m Ω
		$V_{GS} = -2.5V, I_D = -2A$		19	28	
		$V_{GS} = -4.5V, I_D = -2.5A$		15	21	
Forward Transconductance ¹	g_{fs}	$V_{DS} = -10V, I_D = -2.5A$		21		S
DYNAMIC						
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = -10V, f = 1MHz$		1727		pF
Output Capacitance	C_{oss}			179		
Reverse Transfer Capacitance	C_{rss}			155		
Gate Resistance	R_g	$V_{GS} = 0V, V_{DS} = 0V, f = 1MHz$		10		Ω
Total Gate Charge ²	Q_g	$V_{DS} = -10V, V_{GS} = -4.5V, I_D = -2.5A$		21		nC
Gate-Source Charge ²	Q_{gs}			1.8		
Gate-Drain Charge ²	Q_{gd}			4.9		
Turn-On Delay Time ²	$t_{d(on)}$	$V_{DD} = -10V$ $I_D \cong -2.5A, V_{GEN} = -4.5V, R_G = 6\Omega$		28		nS
Rise Time ²	t_r			21		
Turn-Off Delay Time ²	$t_{d(off)}$			81		
Fall Time ²	t_f			48		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS ($T_J = 25^{\circ}C$)						
Continuous Current	I_S				-1.7	A
Forward Voltage ¹	V_{SD}	$I_F = -2.5A, V_{GS} = 0V$			-1.2	V
Reverse Recovery Time	t_{rr}	$I_F = -2.5A, dl_F/dt = 100A / \mu S$		35		nS
Reverse Recovery Charge	Q_{rr}			18		nC

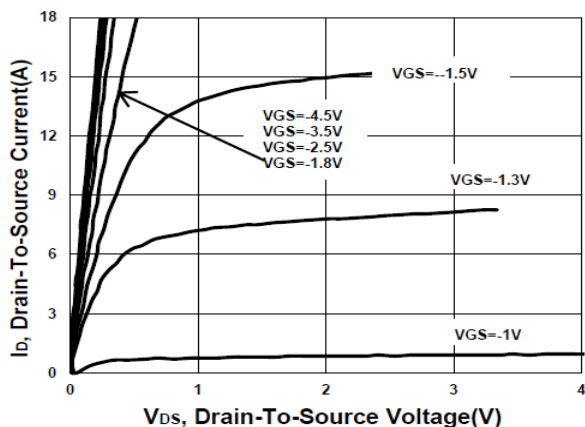
¹Pulse test : Pulse Width $\leq 300 \mu\text{sec}$, Duty Cycle $\leq 2\%$.

²Independent of operating temperature.

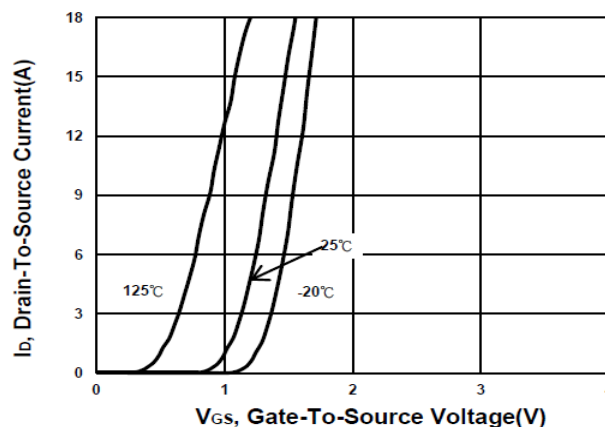
PB521BX

P-Channel Enhancement Mode MOSFET

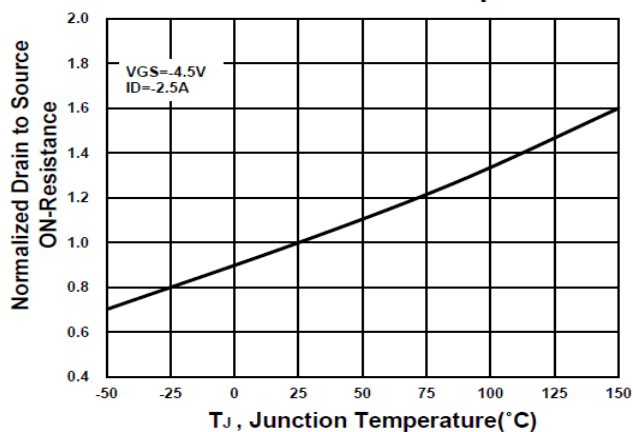
Output Characteristics



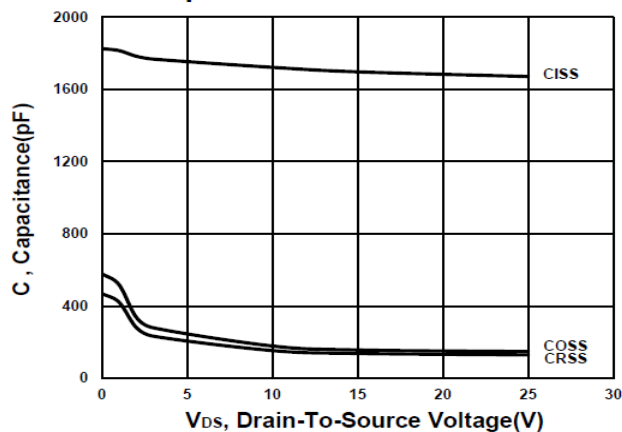
Transfer Characteristics



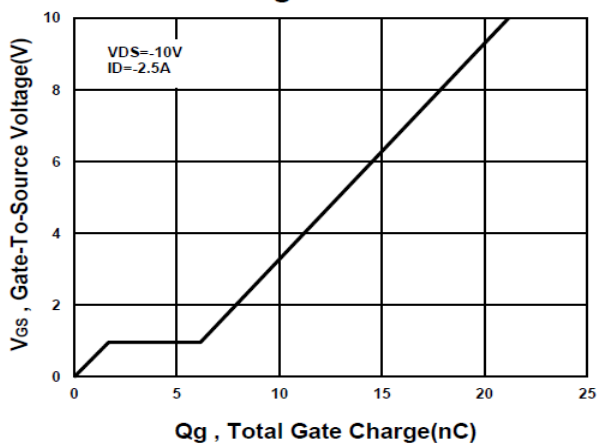
On-Resistance VS Temperature



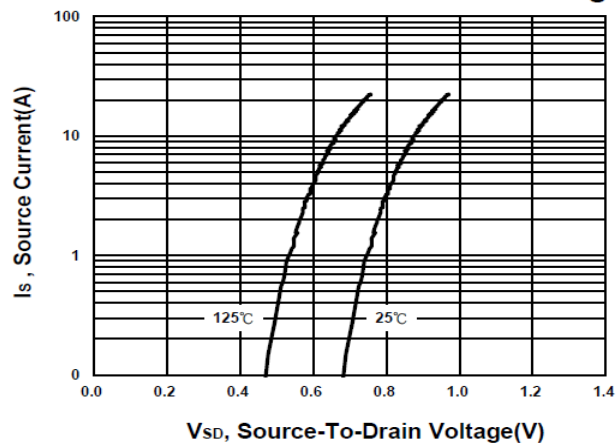
Capacitance Characteristic



Gate charge Characteristics



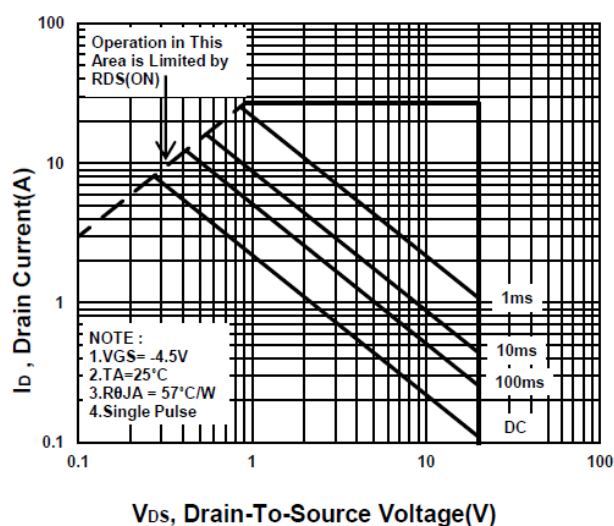
Source-Drain Diode Forward Voltage



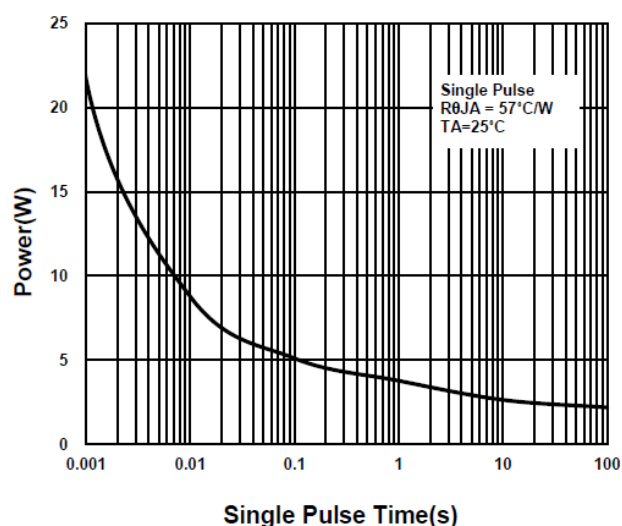
PB521BX

P-Channel Enhancement Mode MOSFET

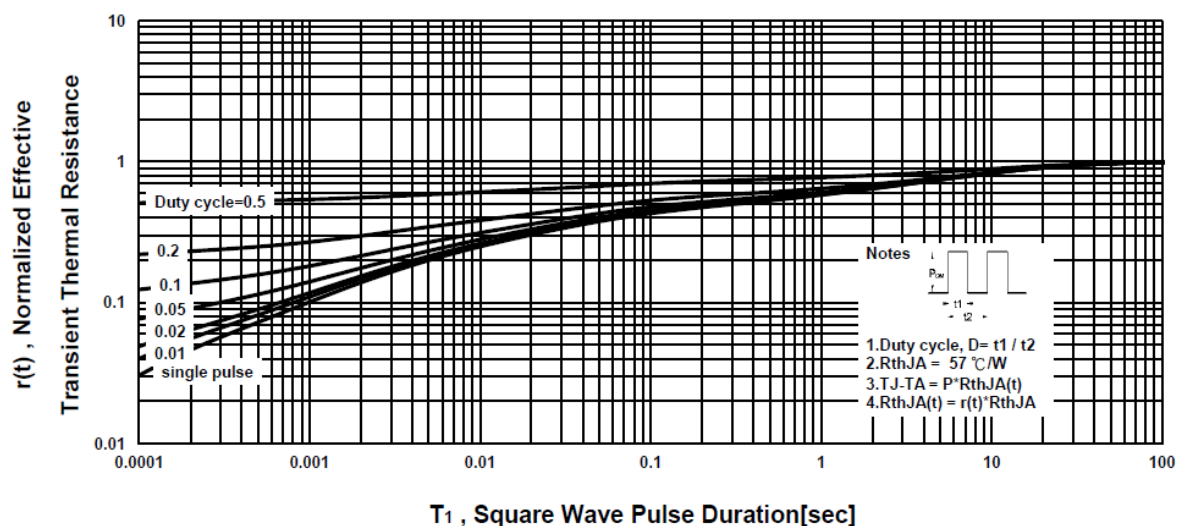
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



PB521BX

P-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	I	0		0.05
B	1.9		2.1	J		0.203	
C	0.55	0.65	0.75	K	0.55		0.8
D	0.85		1.25	L	0.2		0.4
E	0.174	0.25	0.326	M	0.46		0.85
F	0.25		0.35	N		0.15	
G		0.2		O		0.23	
H	0.8		1.15				

