

PE537BA

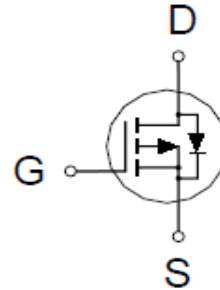
P-Channel Logic Level Enhancement Mode MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$	$R_{DS(ON)}$	I_D
-30V	8.5m Ω @ $V_{GS} = -10V$	-33A



PDFN 3X3P



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

PARAMETERS/TEST CONDITIONS		SYMBOL	LIMITS	UNITS
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ³	$T_C = 25^\circ\text{C}$	I_D	-33	A
	$T_C = 100^\circ\text{C}$		-22	
	$T_A = 25^\circ\text{C}$		-12	
	$T_A = 70^\circ\text{C}$		-9.6	
Pulsed Drain Current ¹		I_{DM}	-100	
Avalanche Current		I_{AS}	-34	
Avalanche Energy	$L = 0.1\text{mH}$	E_{AS}	57.8	mJ
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	16.7	W
	$T_C = 100^\circ\text{C}$		6.7	
	$T_A = 25^\circ\text{C}$		2	
	$T_A = 70^\circ\text{C}$		1.3	
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	$R_{\theta JA}$		60	$^\circ\text{C} / \text{W}$
Junction-to-Case	$R_{\theta JC}$		7.5	

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 $T_A = 25^\circ\text{C}$.

³Package limitation current is 22A.

PE537BA

P-Channel Logic Level Enhancement Mode MOSFET

ELECTRICAL CHARACTERISTICS (T_J = 25 °C, Unless Otherwise Noted)

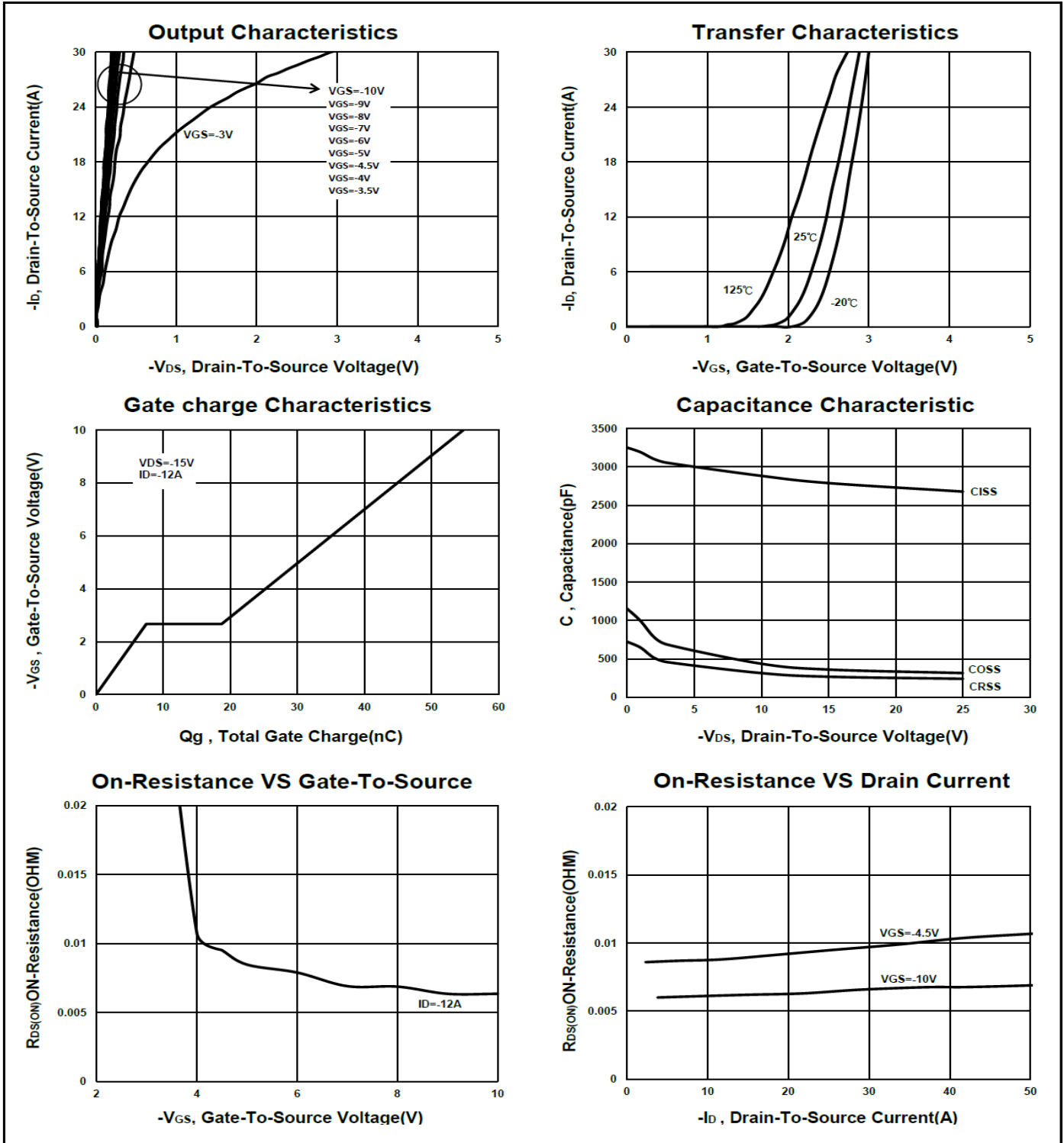
PARAMETER	SYMBOL	TEST CONDITIONS	LIMITS			UNITS
			MIN	TYP	MAX	
STATIC						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1	-1.6	-3	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0V, V _{GS} = ±20V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = -24V, V _{GS} = 0V			-1	μA
		V _{DS} = -20V, V _{GS} = 0V, T _J = 55 °C			-10	
Drain-Source On-State Resistance ¹	R _{DS(ON)}	V _{GS} = -4.5V, I _D = -12A		9.9	14	mΩ
		V _{GS} = -10V, I _D = -12A		6.9	8.5	
Forward Transconductance ¹	g _{fs}	V _{DS} = -10V, I _D = -12A		35		S
DYNAMIC						
Input Capacitance	C _{iss}	V _{GS} = 0V, V _{DS} = -15V, f = 1MHz		2803		pF
Output Capacitance	C _{oss}			371		
Reverse Transfer Capacitance	C _{rss}			286		
Gate Resistance	R _g	V _{GS} = 0V, V _{DS} = 0V, f = 1MHz		4		Ω
Total Gate Charge ²	Q _g (V _{GS} = -10V)	V _{DS} = -15V, I _D = -12A		56		nC
	Q _g (V _{GS} = -4.5V)			28		
Gate-Source Charge ²	Q _{gs}			8		
Gate-Drain Charge ²	Q _{gd}			12		
Turn-On Delay Time ²	t _{d(on)}		V _{DD} = -10V, I _D ≅ -12A, V _{GS} = -10V, R _{GEN} = 6Ω		21	
Rise Time ²	t _r			25		
Turn-Off Delay Time ²	t _{d(off)}			100		
Fall Time ²	t _f			73		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS (T_J = 25 °C)						
Continuous Current	I _S				-12.8	A
Forward Voltage ¹	V _{SD}	I _F = -12A, V _{GS} = 0V			-1.3	V
Reverse Recovery Time	t _{rr}	I _F = -12A, dI/dt = 100A / μS		26		nS
Reverse Recovery Charge	Q _{rr}			14		nC

¹Pulse test : Pulse Width ≤ 300 μsec, Duty Cycle ≤ 2%.

²Independent of operating temperature.

PE537BA

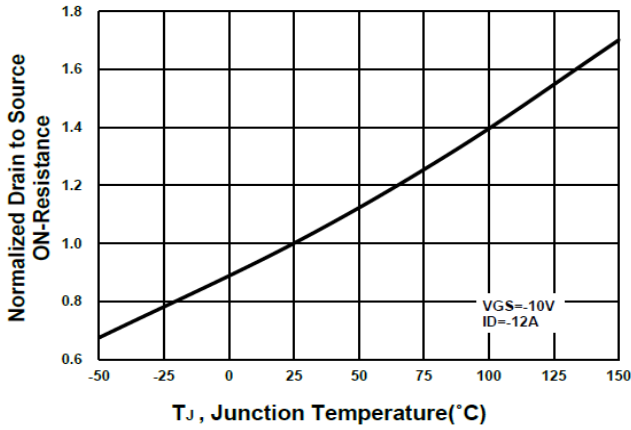
P-Channel Logic Level Enhancement Mode MOSFET



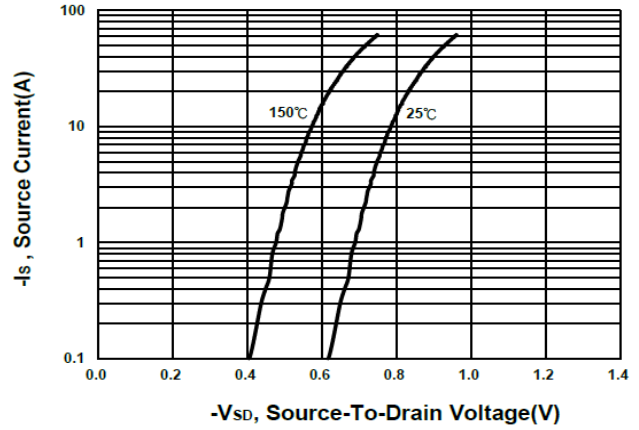
PE537BA

P-Channel Logic Level Enhancement Mode MOSFET

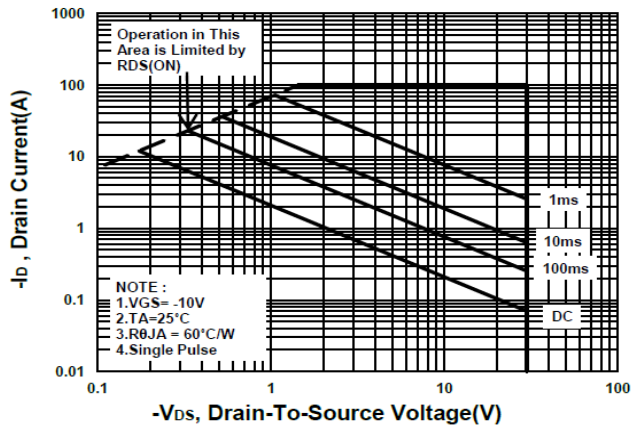
On-Resistance VS Temperature



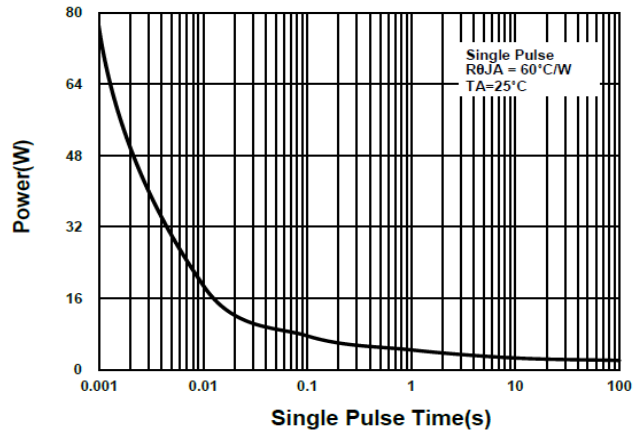
Source-Drain Diode Forward Voltage



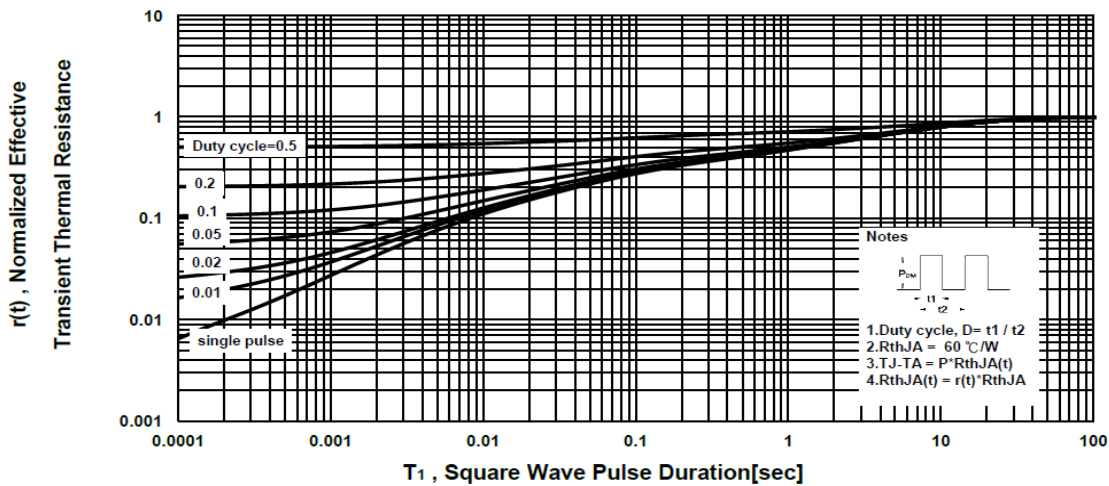
Safe Operating Area



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



PE537BA

P-Channel Logic Level Enhancement Mode MOSFET

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

