

PRODUCT CHARACTERISTICS

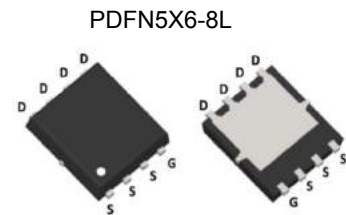
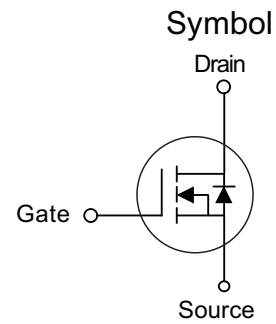
VDSS	30V
$R_{DS(on)typ}(V_{GS}=10V)$	1.35mΩ
$R_{DS(on)typ}(V_{GS}=4.5V)$	1.8mΩ
ID	170A

APPLICATIONS

- * Switching applications

FEATURES

- * Low capacitance
- * Low gate charge
- * Fast switching capability
- * Avalanche energy specified



ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3114G	PDFN5X6	5000 pieces /Reel

ABSOLUTE MAXIMUM RATINGS (T_C = 25°C, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V _{DSS}	30	V
Gate-Source Voltage	V _{GSS}	±20	V
Continuous Drain Current	I _D	170	A
Pulsed drain current	I _{DM}	400	A
Power Dissipation	P _D	88	W
Derate above 25°C		0.37	W/°C
Junction Temperature	T _J	+150	°C
Storage Temperature	T _{STG}	-55 ~ +150	°C

THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ _{JC}	1.42	°C/W

■ Electrical Characteristics (T_C=25°C unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	DSS	VGS=0V ID=250μA	30	-	-	V
Zero Gate Voltage Drain Current	IDSS	VDS=30V,VGS =0V	-	-	1	μA
Gate-Body Leakage Current	IGSS	VGS=±20V,VDS =0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	VGS(th)	VDS=VGS,ID=250μ A	1.0	1.5	2.0	V
Drain-Source On-State Resistance	RDS(ON)	VGS=10V, ID =85A	-	1.35	1.65	mΩ
		VGS=4.5V, ID=85A	-	1.8	2.2	mΩ
Forward Transconductance	gFS	VDS=5V,ID=85A	20	-	-	S
Dynamic characteristics						
Input Capacitance	Ciss	VDS=15V,VGS=0V, F=1.0MHz	-	6150	-	PF
Output Capacitance	Coss		-	1550	-	PF
Reverse Transfer Capacitance	Crss		-	105	-	PF
Dynamic characteristics						
Turn-on Delay Time	td(on)	VDD=15V,ID=85A VGS=10V,RG=1.6Ω	-	13	-	nS
Turn-on Rise Time	tr		-	7.5	-	nS
Turn-Off Delay Time	td(off)		-	51	-	nS
Turn-Off Fall Time	tf		-	8.6	-	nS
Total Gate Charge	Qg	VDS=15V,ID=85A, VGS=10V	-	98	-	nC
Gate-Source Charge	Qgs		-	16	-	nC
Gate-Drain Charge	Qgd		-	11	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	VSD	VGS=0V,IS=85A	-	-	1.2	V
Diode Forward Current	IS		-	-	170	A
Reverse Recovery Time	trr	TJ = 25°C, IF = IS	-	32	-	nS
Reverse Recovery Charge	Qrr	di/dt = 100A/μs	-	112	-	nC

■ TYPICAL CHARACTERISTICS

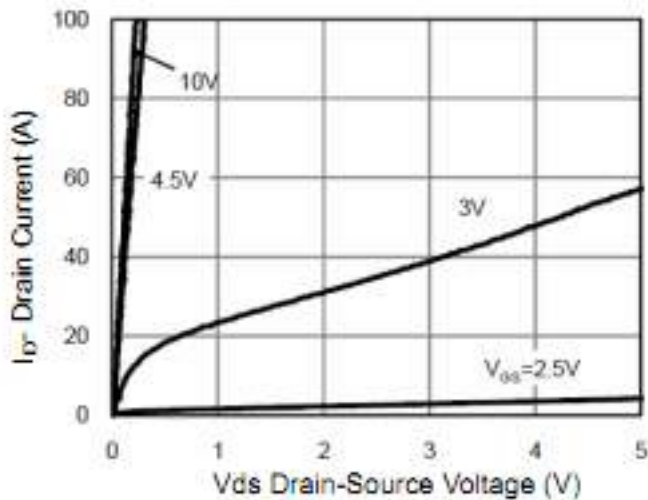


Figure 1 Output Characteristics

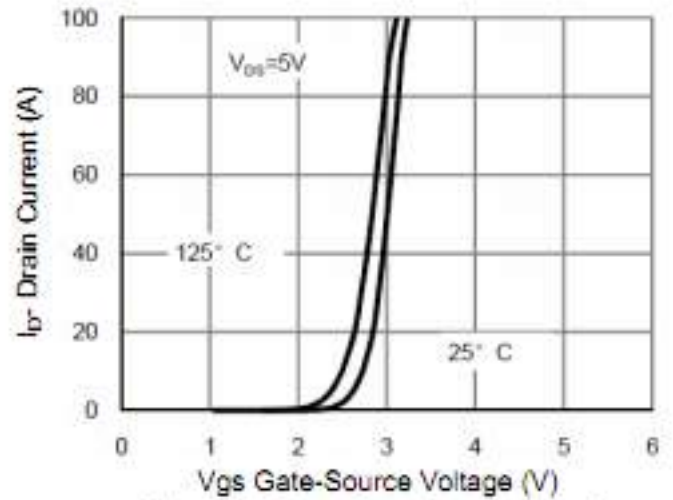


Figure 2 Transfer Characteristics

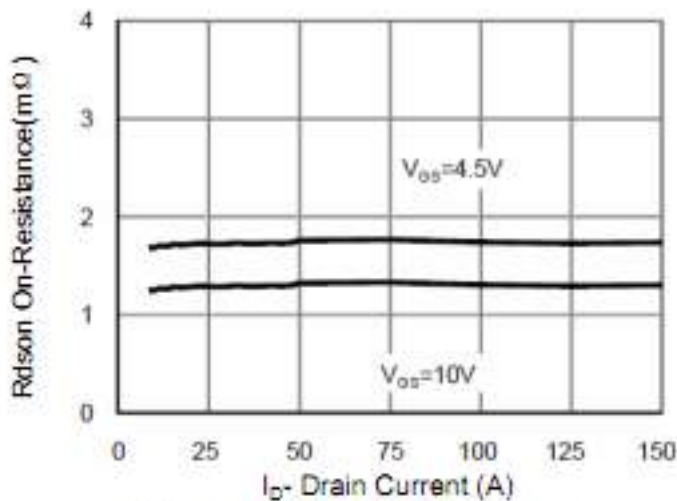


Figure 3 Rdson- Drain Current

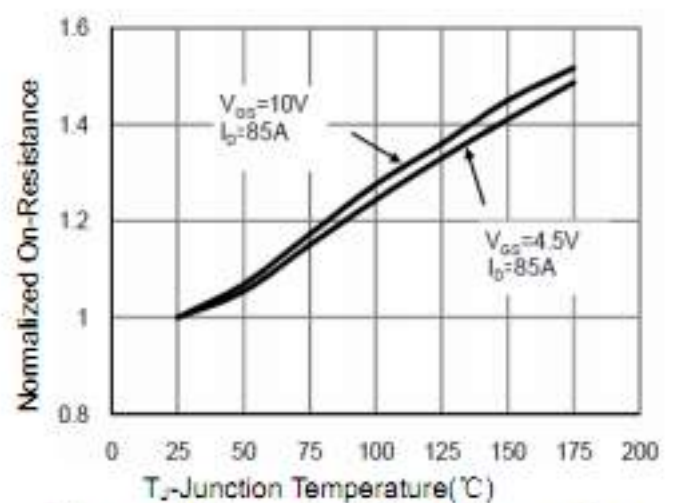


Figure 4 Rdson-Junction Temperature

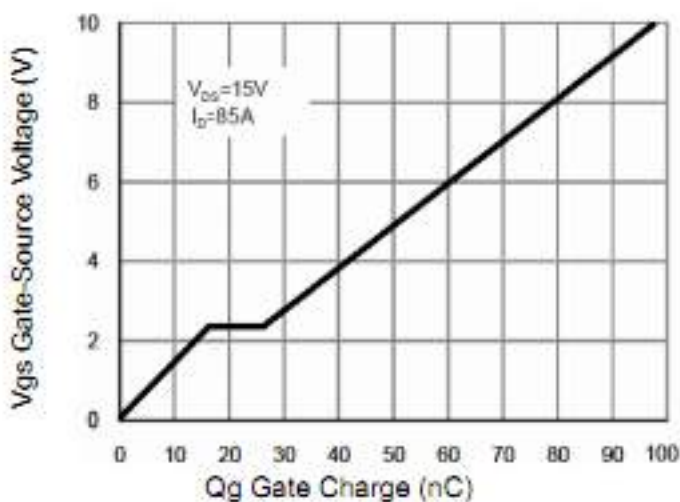


Figure 5 Gate Charge

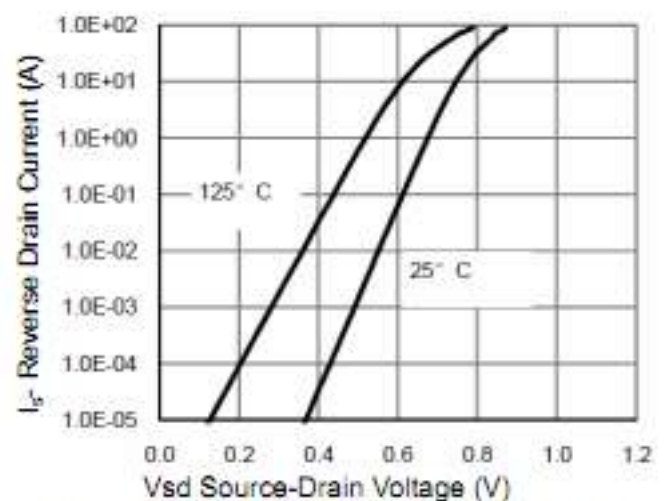


Figure 6 Source- Drain Diode Forward

■ TYPICAL CHARACTERISTICS(Cont.)

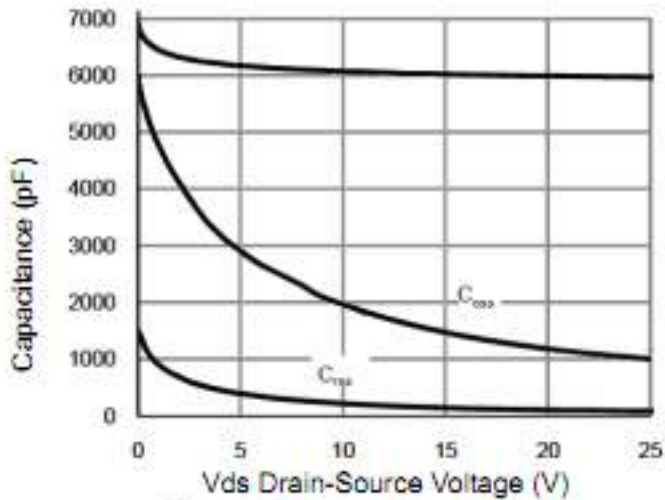


Figure 7 Capacitance vs Vds

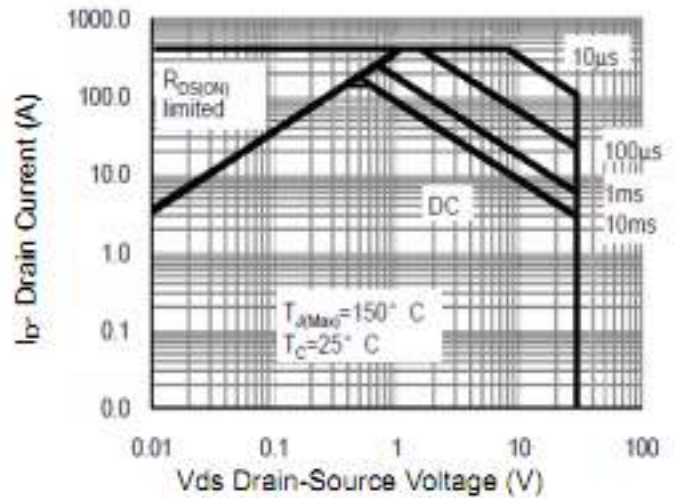


Figure 8 Safe Operation Area

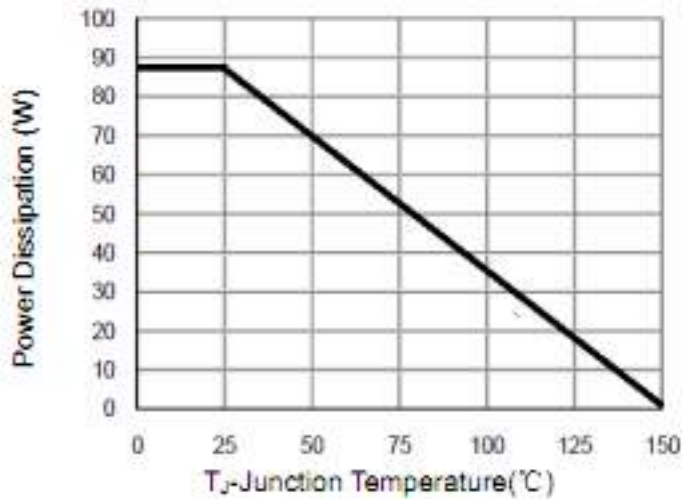


Figure 9 Power De-rating

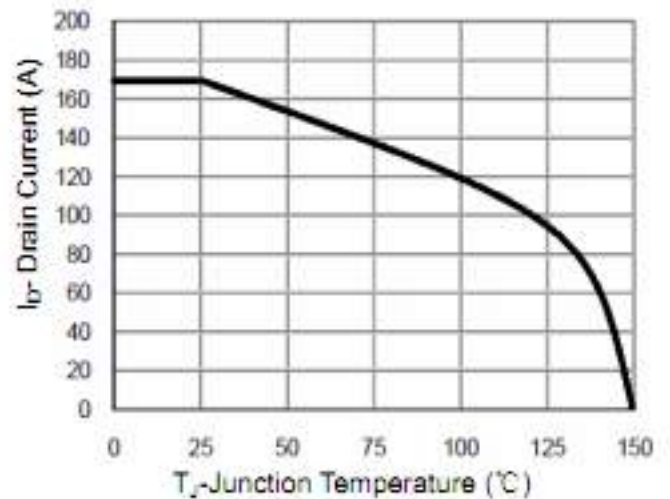


Figure 10 Current De-rating

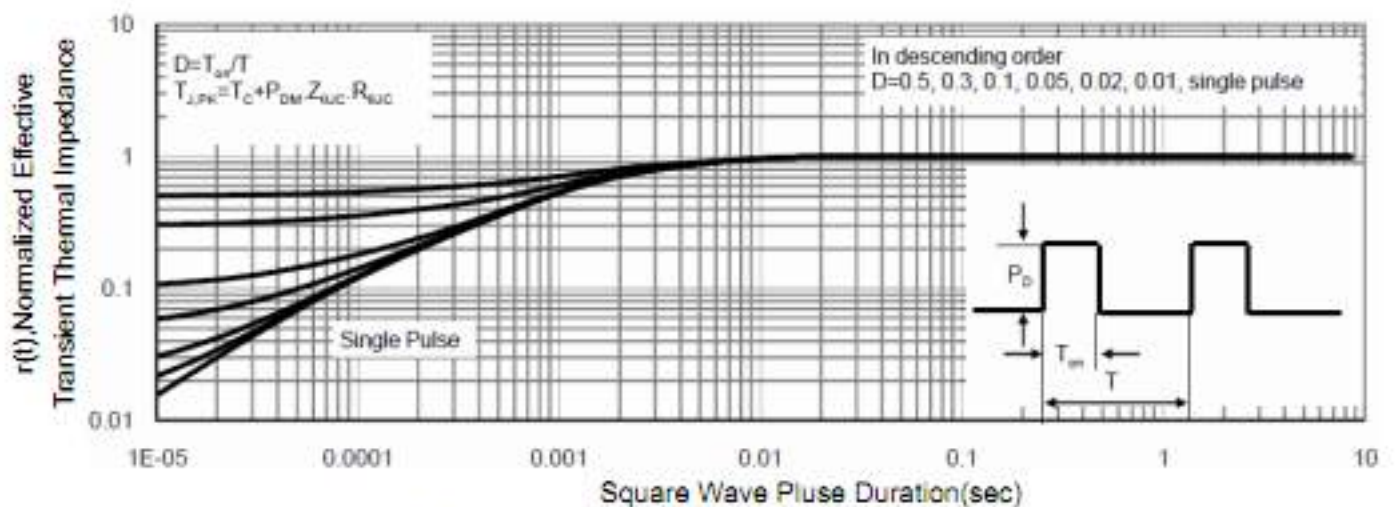
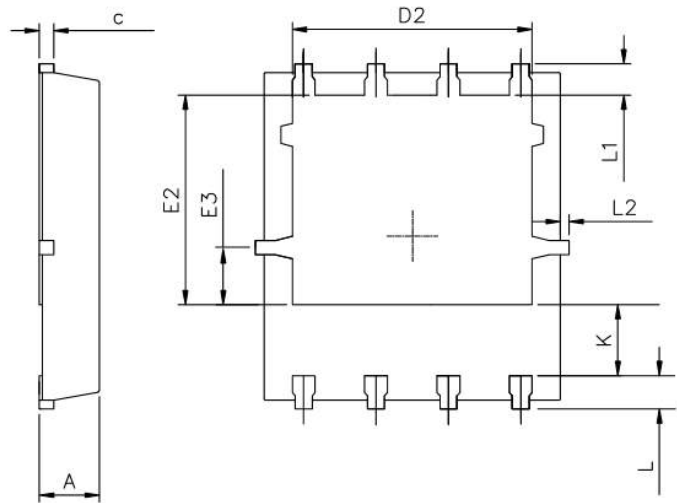
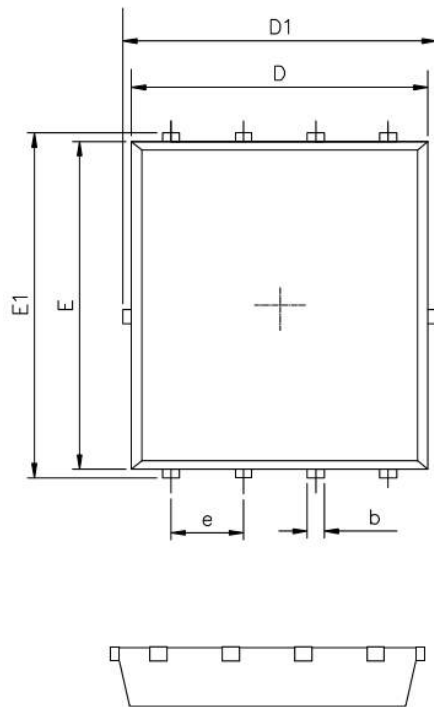
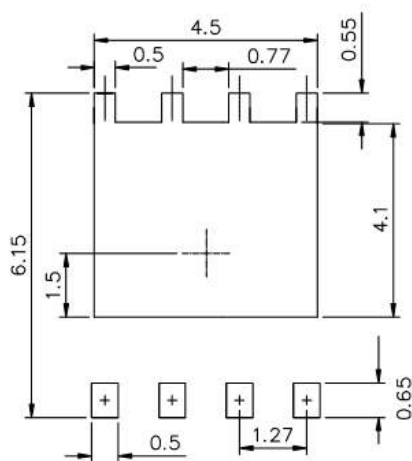


Figure 11 Normalized Maximum Transient Thermal Impedance

■ PDFN5X6-8L Package Mechanical Data



RECOMMENDED LAND PATTERN



UNIT:mm

	MIN	NOM	MAX
A	0.90	1.00	1.10
b	0.25	0.35	0.50
c	0.10	0.20	0.30
D	4.80	5.00	5.30
D1	4.90	5.10	5.50
D2	3.92	4.02	4.20
E	5.65	5.75	5.85
E1	5.90	6.05	6.20
E2	3.325	3.525	3.775
E3	0.80	0.90	1.00
e		1.27	
L	0.40	0.55	0.70
L1		0.65	
L2	0.00		0.15
K	1.00	1.30	1.50