

PRODUCT CHARACTERISTICS

V_{DSS}	500V
$R_{DS(ON)}$ Typ(@ $V_{GS}=10V$)	2.3Ω
Q_g @typ	13nC
I_D	3A

APPLICATIONS

- * High efficiency switch mode power supplies
- * Electronic lamp ballasts based on half bridge
- * LED power supplies

FEATURE

- * High Switching Speed
- * Improved dv/dt capability

ORDER INFORMATION

Order Codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT50226G	PDFN5X6	5000 pieces/Reel

ABSOLUTE MAXIMUM RATINGS($T_A=25^\circ C$, unless otherwise specified)

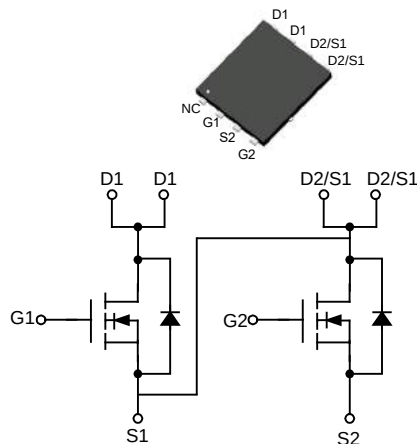
Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	V_{DSS}	500	V
Gate-Source Voltage	V_{GSS}	± 30	V
Drain Current Continuous(@ $V_{GS}=10V$, $T_A=25^\circ C$)	I_D	3	A
Drain Current Pulsed	I_{DM}	12	A
Avalanche Energy *	E_{AS}	151	mJ
Peak Diode Recovery dv/dt	dv/dt	5	V/ns
Power Dissipation	P_D	50	W
Junction Temperature	T_J	+150	$^\circ C$
Storage Temperature	T_{STG}	-55~ +150	$^\circ C$

THERMAL CHARACTERISTICS

Parameter	Symbol	Typ	Unit
Junction to Case	R_{thJC}	2.5	$^\circ C/W$

Note: * EAS condition: $T_J=25^\circ C$, $V_{DD}=50V$, $V_G=10V$, $L=10mH$, $R_g=25\Omega$

Symbol



PDFN5X6



■ ELECTRICAL CHARACTERISTICS ($T_C=25^{\circ}\text{C}$, unless otherwise noted)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Off characteristics						
Drain to Source Breakdown Voltage	V _{DSS}	V _{GS} =0V, I _D =250μA	500	-	-	V
Drain to Source Leakage Current	I _{DSS}	V _{DS} =500V, V _{GS} =0V	-	-	1	μA
Gate to Source Forward Leakage	I _{GSS(F)}	V _{DS} =0V, V _{GS} =+30V	-	-	100	nA
Gate to Source Reverse Leakage	I _{GSS(R)}	V _{DS} =0V, V _{GS} =-30V	-	-	-100	nA
On characteristics						
Drain to Source On-Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =1.5A	-	2.3	3	Ω
Gate Threshold Voltage	V _{GS(TH)}	V _{DS} =V _{GS} , I _D =250μA	2	-	4	V
Dynamic characteristics						
Gate Resistance	R _g	V _{GS} =0V, V _{DS} =0V ,f=1.0MHz	-	2.4	-	Ω
Forward Transconductance	g _{fs}	V _{DS} =10V, I _D =3A	-	4	-	S
Input Capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V f=1.0MHz	-	358	-	pF
Output Capacitance	C _{oss}		-	45	-	pF
Reverse Transfer Capacitance	C _{rss}		-	11	-	pF
Resistive Switching Characteristics						
Turn-on Delay Time	t _{d(ON)}	I _D =3A, V _{DS} =250V R _G =25Ω ,V _{GS} =10V	-	12	-	ns
Rise Time	t _r		-	46	-	ns
Turn-off Delay Time	t _{d(OFF)}		-	50	-	ns
Fall Time	t _f		-	48	-	ns
Total Gate Charge	Q _g	I _D =3A, V _{DS} =250V V _{GS} =10V	-	13	-	nC
Gate to Source Charge	Q _{gs}		-	2.2	-	nC
Gate to Drain("Miller") Charge	Q _{gd}		-	9.7	-	nC
Source-Drain Diode Characteristics						
Continuous Source Current(Body Diode)	I _s		-	-	3	A
Maximum Pulsed Current(Body Diode)	I _{SM}		-	-	12	A
Diode Forward Voltage	V _{SD}	I _{SD} =1A, V _{GS} =0V	-	0.73	1.2	V
Reverse Recovery Time	t _{rr}	I _{SD} =3 A, T _J =25 °C	-	95	-	ns
Reverse Recovery Charge	Q _{rr}	dI /dt=100A/μs	-	250	-	nC

■ TYPICAL CHARACTERISTICS

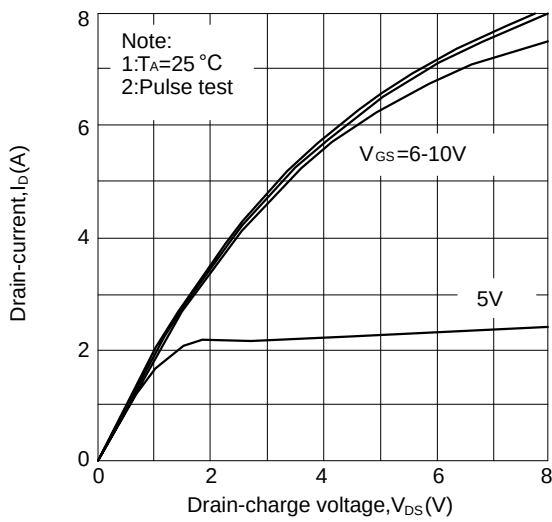


Figure 1: Drain current vs. drain-source voltage

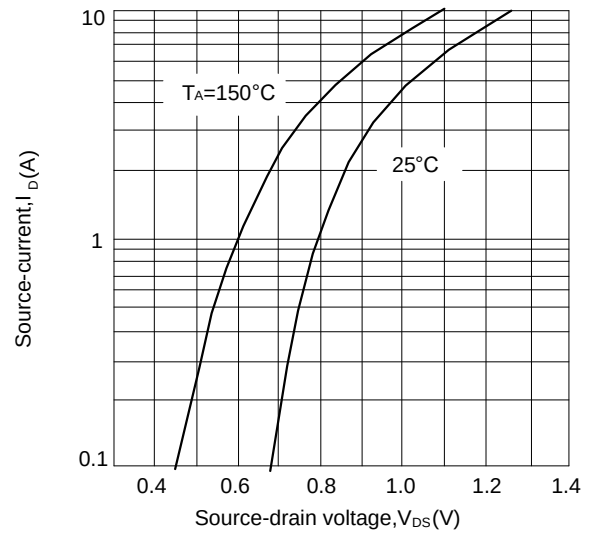


Figure 2: Source current vs. source-drain voltage

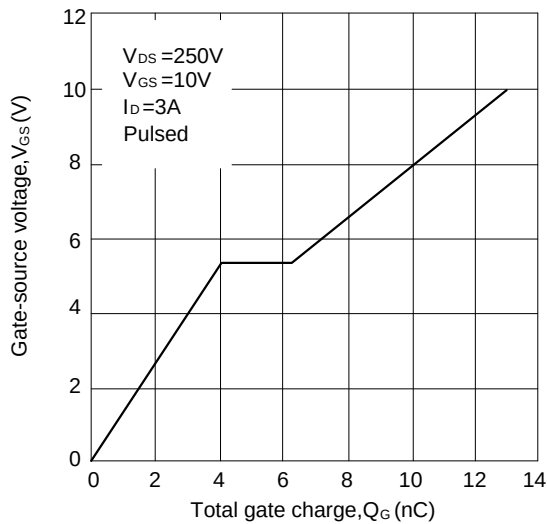


Figure 3: Gate charge characteristics

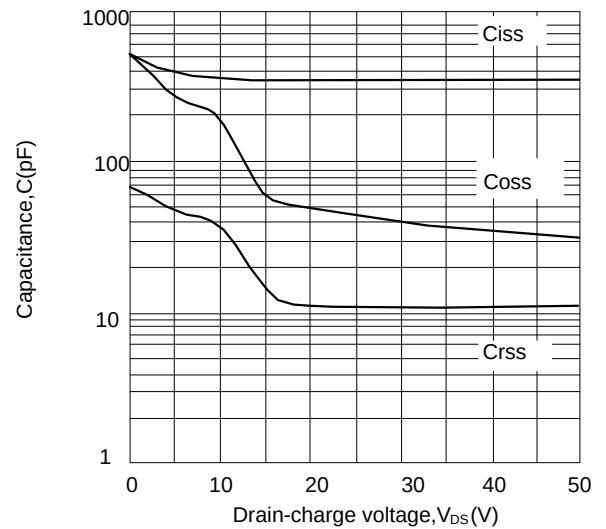


Figure 4: Capacitance characteristics

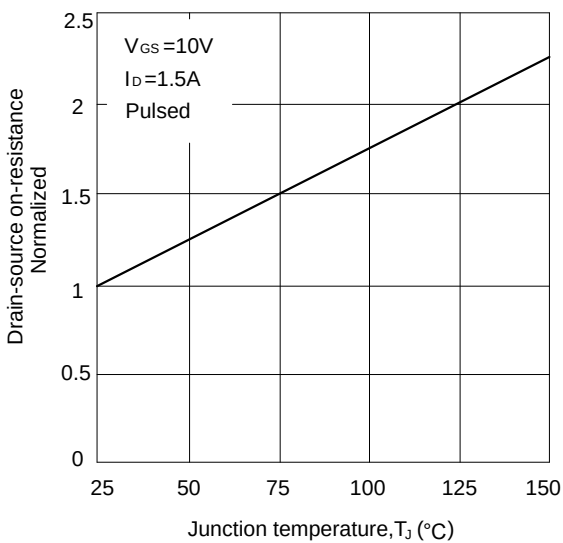


Figure 5: Drain-source on-resistance vs. junction temperature

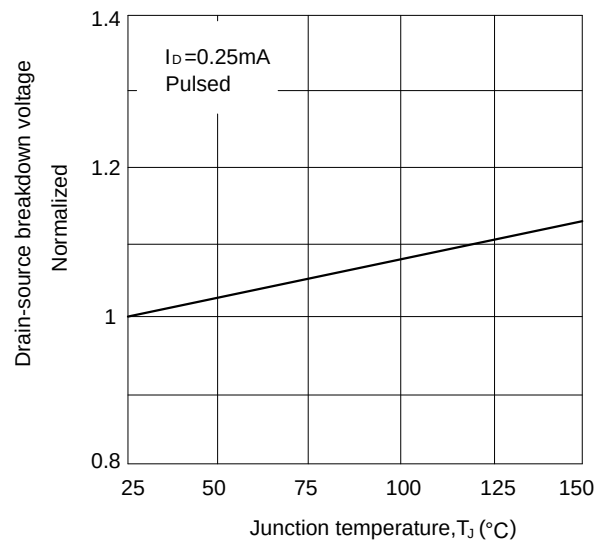


Figure 6: Breakdown voltage vs. junction temperature

■ TYPICAL CHARACTERISTICS(Cont.)

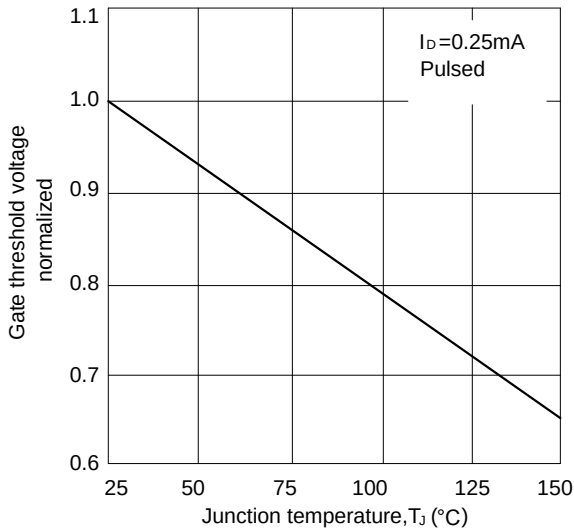


Figure 7: Gate threshold voltage vs junction temperature

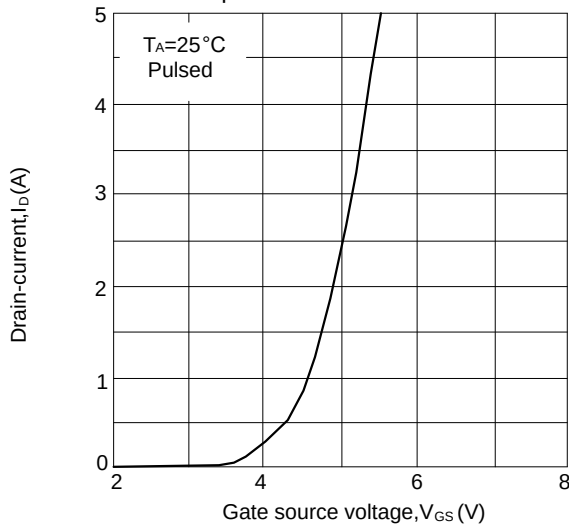


Figure 9: Drain-current vs. gate-source

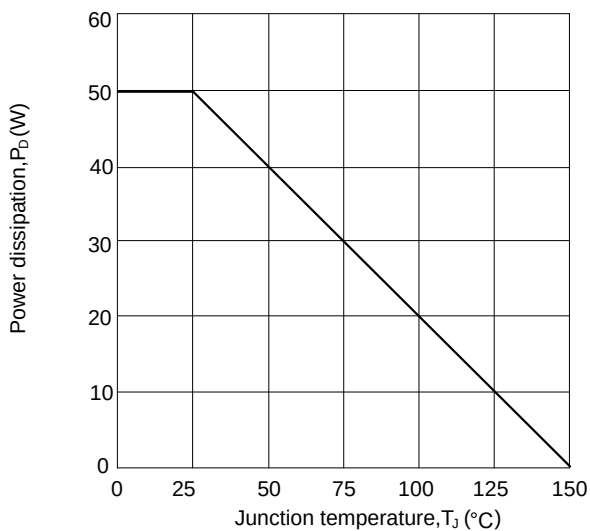


Figure 11: Power dissipation vs. junction temperature

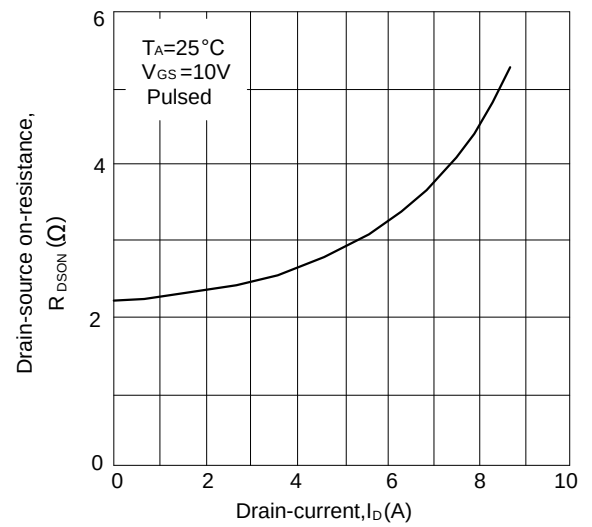


Figure 8: Drain-source on-resistance vs. drain-current

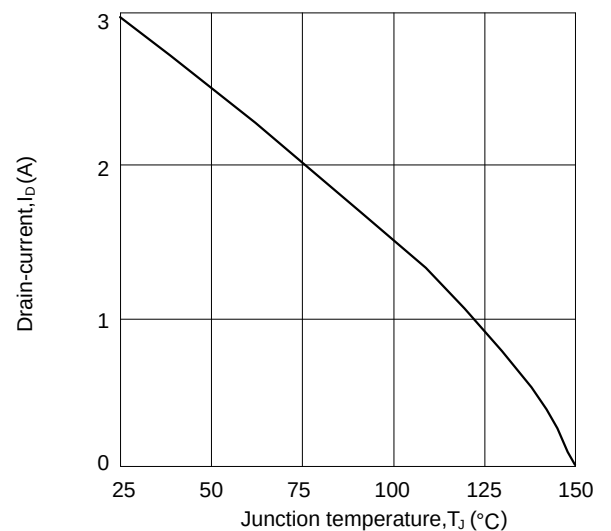


Figure 10: Drain current vs. junction temperature

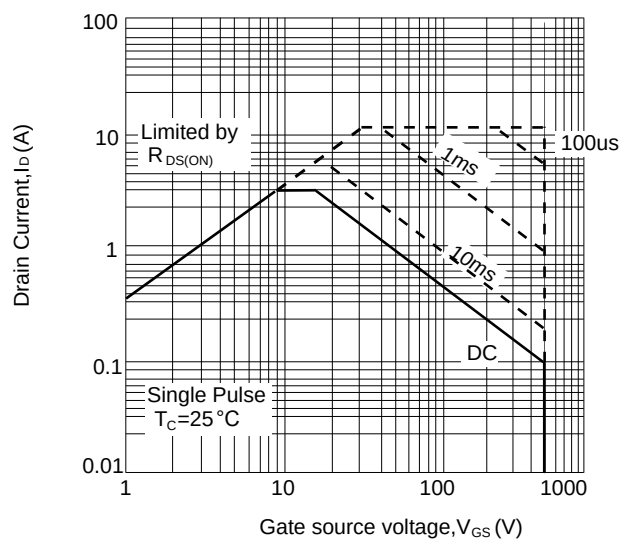
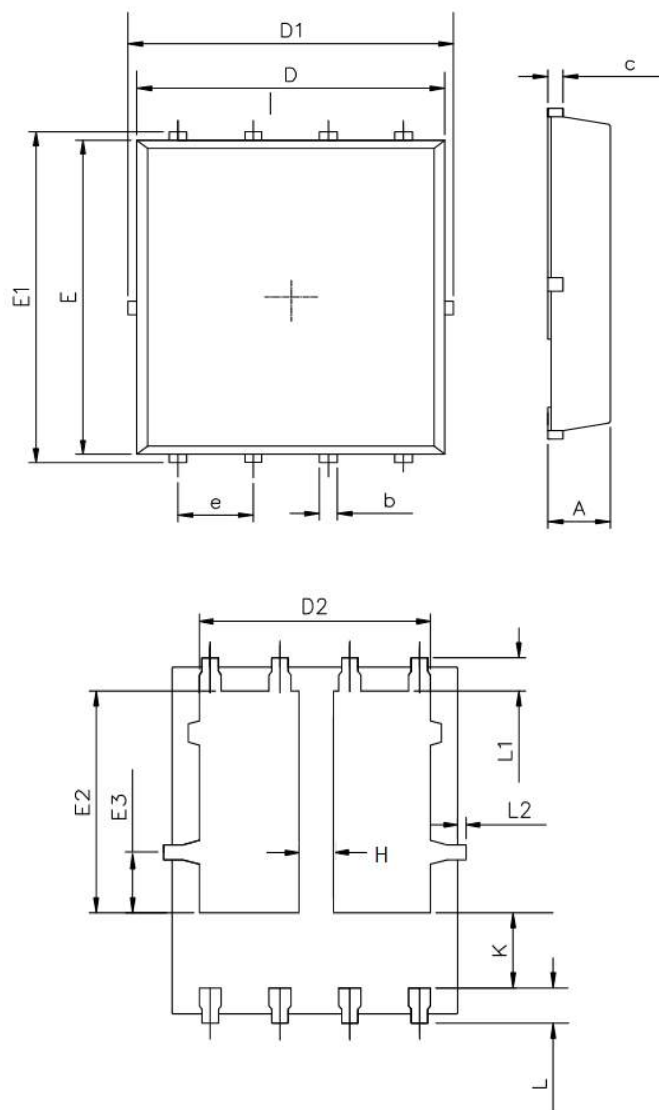


Figure 12: Safe operating area

■ PDFN5X6 PACKAGE MECHANICAL DATA



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
H	0.5	0.6	0.7