

■ PRODUCT CHARACTERISTICS

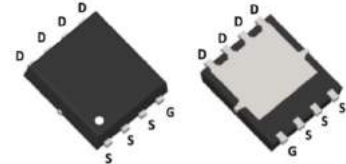
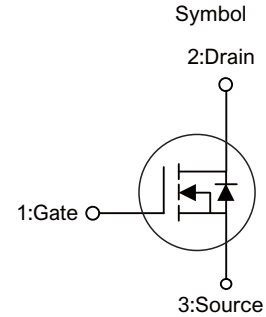
V _{DSS}	30V
R _{DS(ON)Typ} (@V _{GS} = 10V)	7.5mΩ
R _{DS(ON)Typ} (@V _{GS} = 4.5V)	14mΩ
I _D	25A

■ APPLICATIONS

- *SMPS and general purpose applications
- *Hard switched and high frequency circuits
- *Uninterruptible power supply

■ FEATURES

- *High density cell design for ultra low Rdson
- *Fully characterized avalanche voltage and current
- *Good stability and uniformity with high Eas
- *Excellent package for good heat dissipation



PDFN5X6-8L

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3510G	PDFN5X6	5000 pieces/Reel

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

Parameter	Symbol	Ratings	Unit	
Drain-to-source voltage	V _{DSS}	30	V	
Gate-to-source voltage	V _{GSS}	±20	V	
Continuous drain	T _C =25°C	I _D	25	A
	T _C =100°C	I _D	17	A
Pulsed drain current	I _{DM}	50	A	
Avalanche energy	E _{AS}	70	mJ	
Power dissipation (T _C =25°C)	P _D	30	W	
Junction & storage temperature range	T _J , T _{STG}	-55 to +150	°C	

■ THERMAL PERFORMANCE

Parameter	Symbol	Ratings	Unit
Thermal resistance, Junction-to-case	R _{θJC}	4.2	°C/W

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

Parameter	Symbol	Conditions	Min	Typ	Max	Unit
STATIC PARAMETERS						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	30	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$ $T_J=55^\circ\text{C}$	-	-	1	μA
			-	-	5	μA
Gate-body leakage current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	-	2.5	V
Static drain-source on-resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=10A$	-	7.5	10	m Ω
		$V_{GS}=4.5V, I_D=10A$	-	14	19	m Ω
Forward transconductance	g_{FS}	$V_{DS}=5V, I_D=20A$	5	-	-	S
Diode forward voltage	V_{SD}	$I_S=1A, V_{GS}=0V$	-	0.75	1	V
Diode continuous current	I_S	$T_C=25^\circ\text{C}$	-	-	25	A
DYNAMIC PARAMETERS						
Input capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=15V, f=1\text{MHz}$	-	1530	-	pF
Output capacitance	C_{OSS}		-	250	-	pF
Reverse transfer capacitance	C_{rSS}		-	198	-	pF
Gate resistance	R_g	$V_{GS}=0V, V_{DS}=0V, f=1\text{MHz}$	-	1.5	-	Ω
SWITCHING PARAMETERS						
Total charge	Q_g	$V_{GS}=10V$ $V_{DS}=15V, I_D=9A$	-	32.3	-	nC
Gate source charge	Q_{gs}		-	4.9	-	nC
Gate drain charge	Q_{gd}		-	6.9	-	nC
Turn-on delay time	$t_{D(on)}$	$V_{DD}=15V, I_D=10A$ $V_{GS}=10V, R_{GEN}=1.8\Omega$	-	10	-	nS
Turn-on rise time	t_r		-	8	-	nS
Turn-off delay time	$t_{D(off)}$		-	30	-	nS
Turn-off fall time	t_f		-	5	-	nS
Body-diode reverse recovery time	t_{rr}	$I_F=10A, dI_F/dt=100A/\mu s$	-	22	-	nS
Body-diode reverse recovery charge	Q_{rr}	$I_F=10A, dI_F/dt=100A/\mu s$	-	12	-	nC

■ TYPICAL CHARACTERISTICS

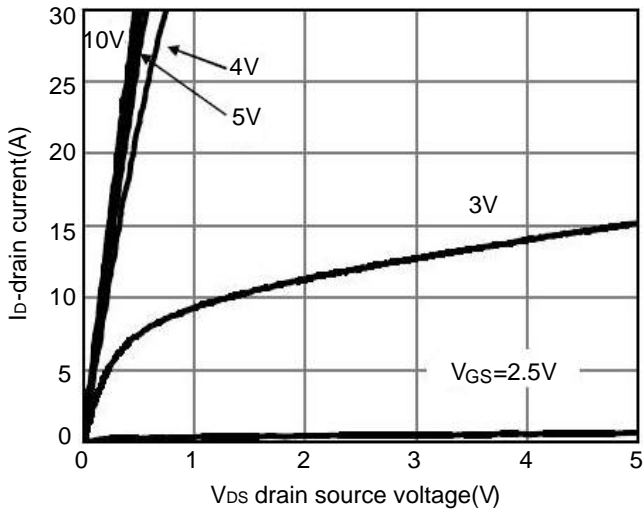


Figure 1 : output characteristics

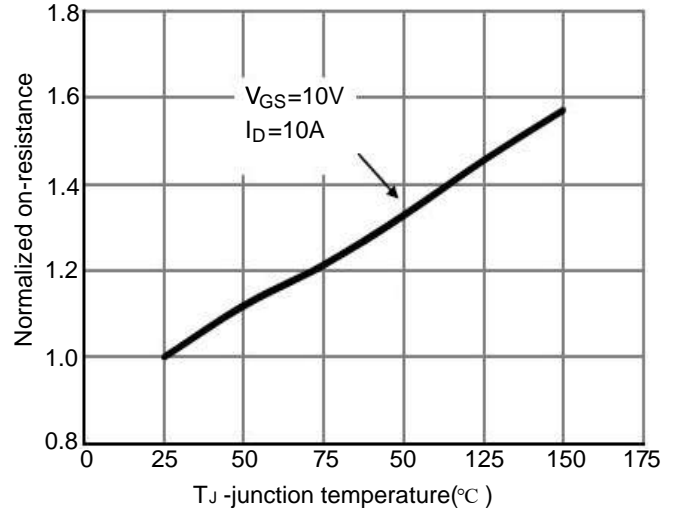


Figure 2 : $r_{DS(on)}$ -junction temperature

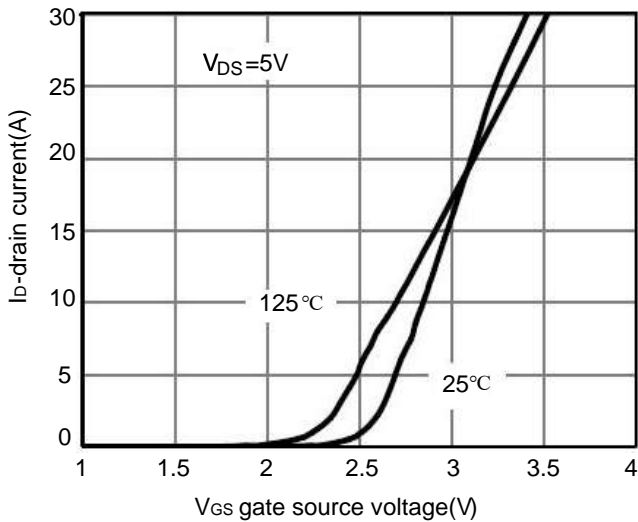


Figure 3 : transfer characteristics

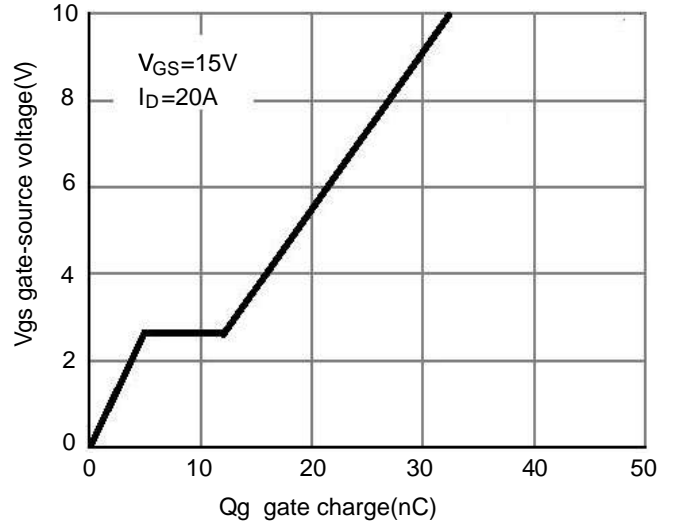


Figure 4 : gate charge

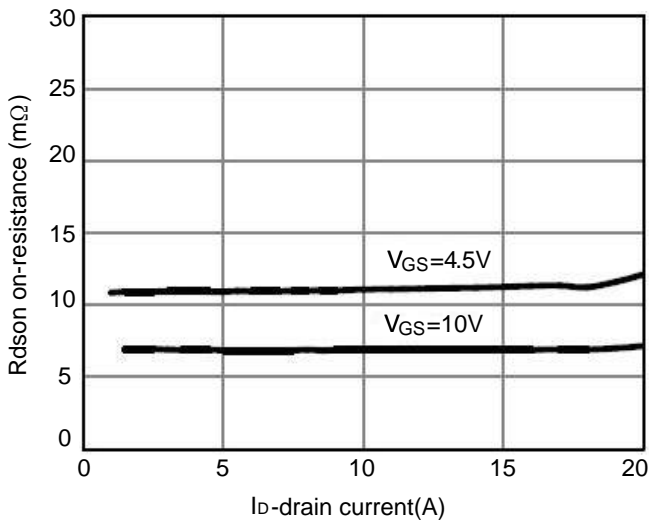


Figure 5 : $r_{DS(on)}$ -drain current

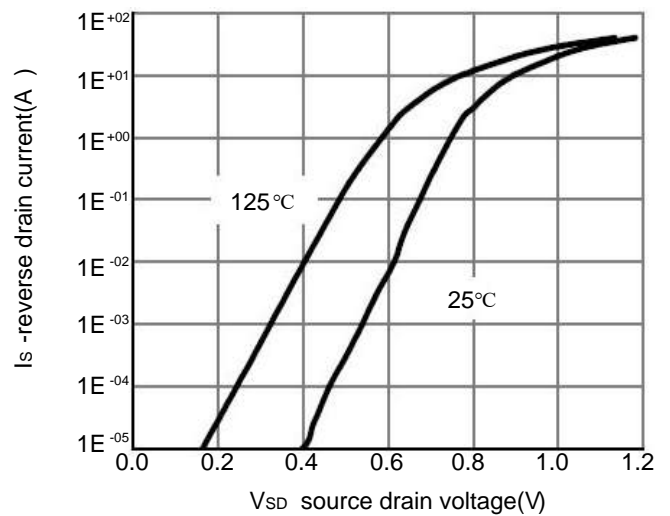


Figure 6 : source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

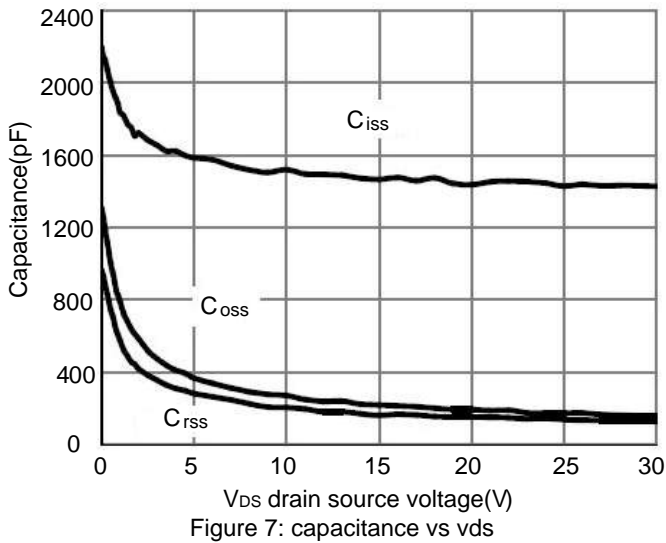


Figure 7: capacitance vs vds

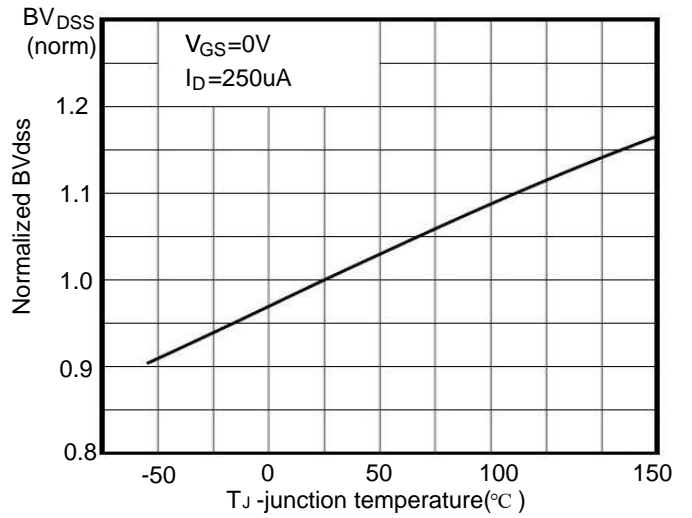


Figure 8 : BV_{DSS} vs junction temperature

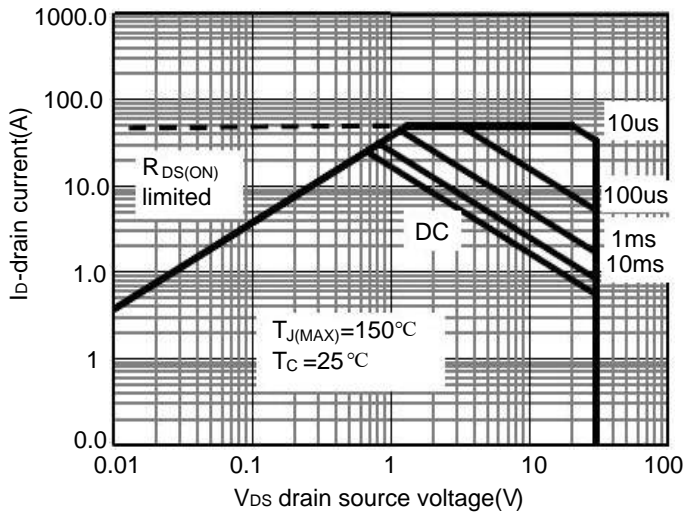


Figure 9: safe operation area

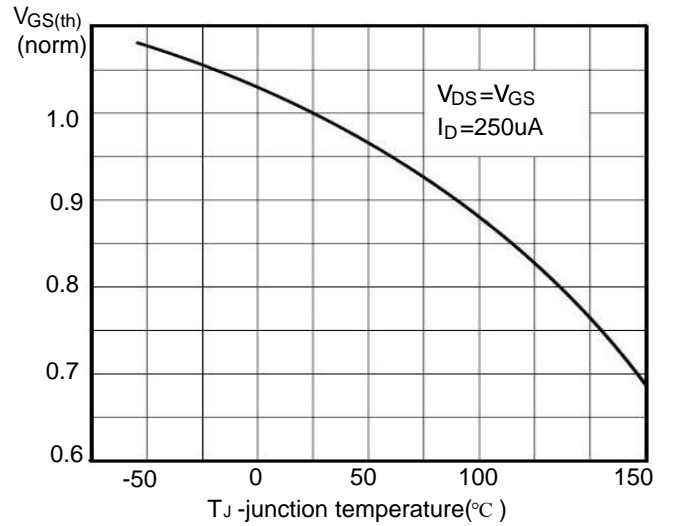


Figure 10 : $V_{GS(th)}$ vs junction temperature

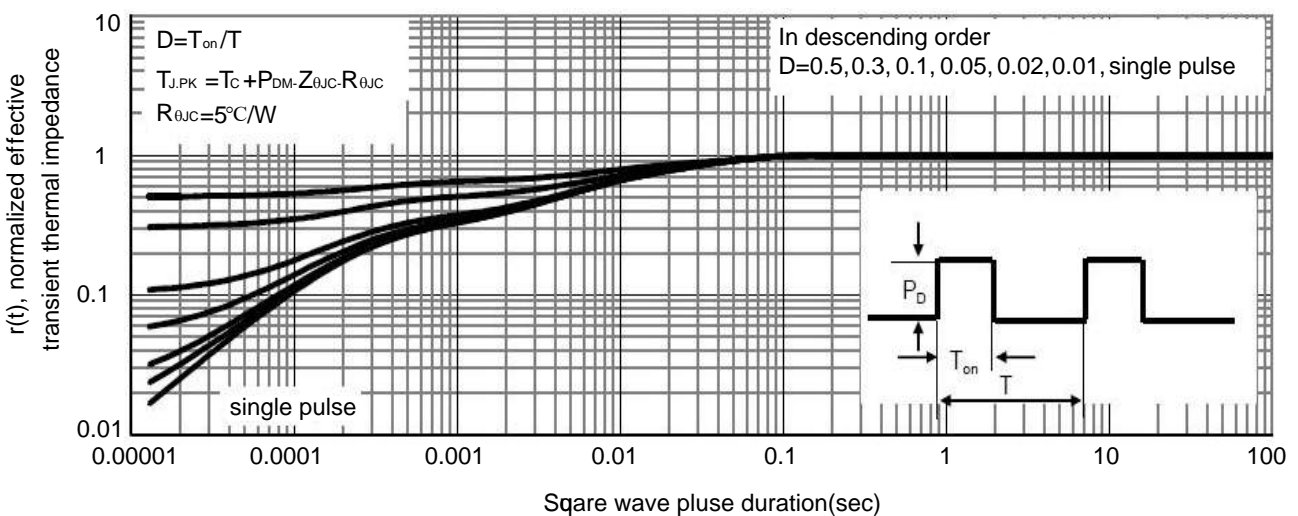
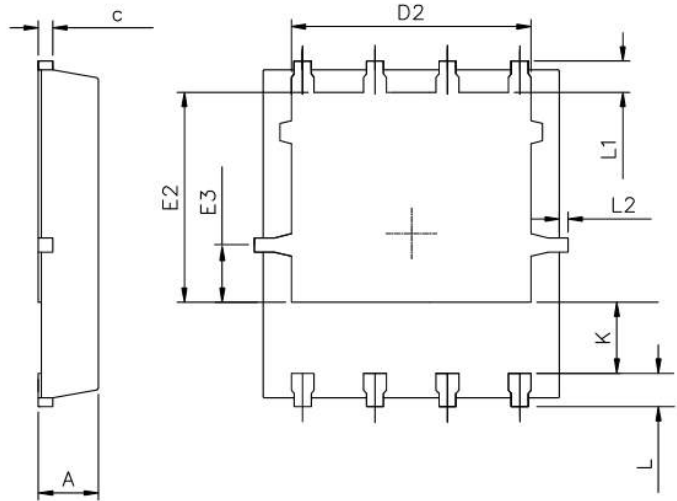
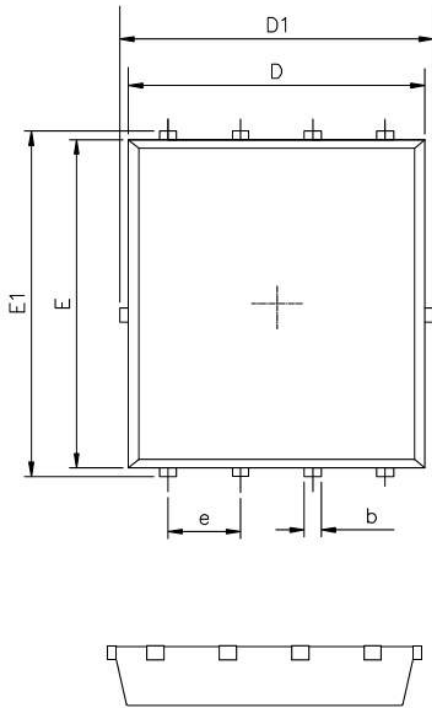
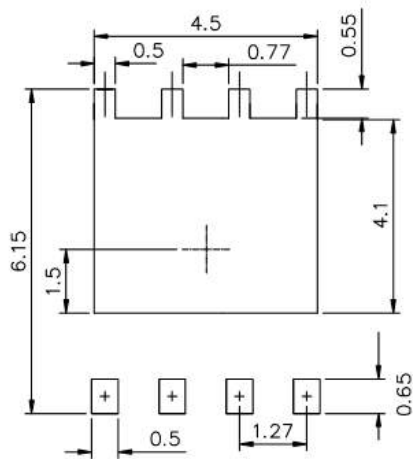


Figure 11 : normalized maximum transient thermal impedance

■ 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