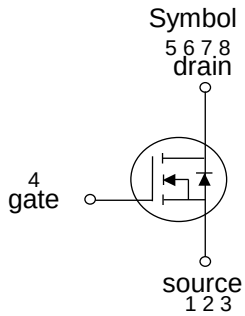
■ PRODUCT CHARACTERISTICS

V_{DSS}	40V
$R_{DS(on)}$ Typ(@V_{GS}=4.5V)	9.5mΩ
$R_{DS(on)}$ Typ(@V_{GS}=10V)	6.5mΩ
I_D	60A

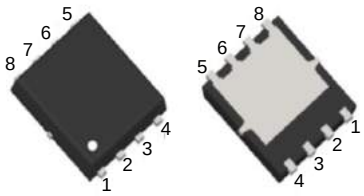


■ APPLICATIONS

DC/DC converter
Ideal for high-frequency switching
and synchronous rectification

■ FEATURES

Very low on-resistance $R_{DS(on)}$
Good stability and uniformity with high E_{AS}
Pb-free lead plating



PDFN5X6-8L

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT4180G	PDFN5X6-8L	5000pieces/Reel

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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DSS}	40	V
Gate-source voltage	V_{GSS}	±20	V
Drain current	I_D	60	A
Pulsed drain currentcurrent	I_{DM}	200	A
Avalanche energy single pulsed	E_{AS}	400	mJ
Power dissipation	P_D	40	W
Junction temperature	T_J	+150	℃
Storage temperature	T_{STG}	-55~+175	℃

■ ELECTRICAL CHARACTERISTICS (T_C=25℃,unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=40V,V_{GS}=	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	1	-	2.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=20A	-	6.5	8.0	mΩ
		V_{GS}=4.5V, I_D=20A	-	9.5	13	mΩ
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=20A	10	-	-	S
Dynamic characteristics						
Input Capacitance	C_{lss}	V_{DS}=20V,V_{GS}=0V, F=1.0MHz	-	1800	-	pF
Output Capacitance	C_{oss}		-	280	-	pF
Reverse Transfer Capacitance	C_{rss}		-	190	-	pF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=20V,I_D=2A,R_L=1Ω V_{GS}=10V,R_G=3Ω	-	6.4	-	nS
Turn-on Rise Time	t_r		-	17.2	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	29.6	-	nS
Turn-Off Fall Time	t_f		-	16.8	-	nS
Total Gate Charge	Q_g	V_{DS}=20V,I_D=20A, V_{GS}=10V	-	29	-	nC
Gate-Source Charge	Q_{gs}		-	4.5	-	nC
Gate-Drain Charge	Q_{gd}		-	6.4	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=10A	-	-	1.2	V
Diode Forward Current	I_S		-	-	60	A
Reverse Recovery Time	t_{rr}	TJ = 25°C, IF = 20A di/dt = 100A/μs	-	29	-	nS
Reverse Recovery Charge	Qrr		-	26	-	nS

■ TYPICAL CHARACTERISTICS

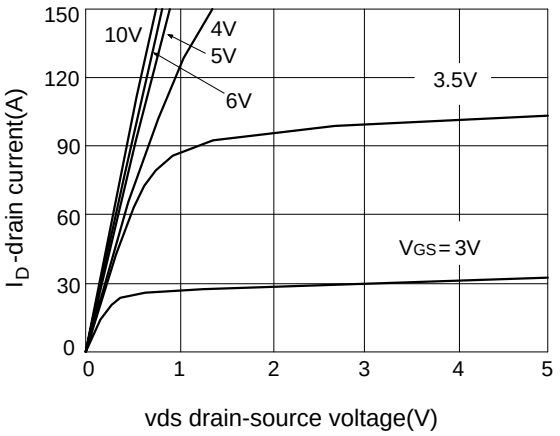


Fig.1 output characteristics

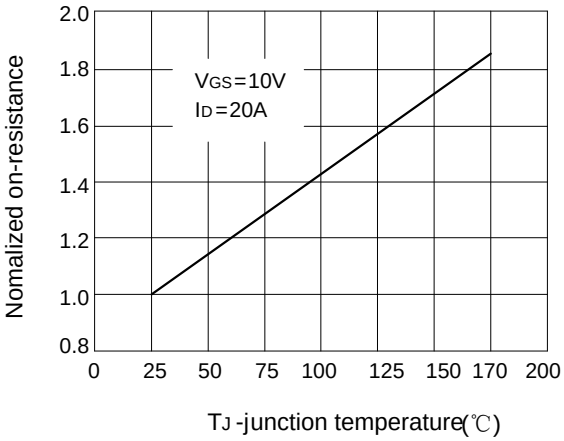


Fig.2 rdson-junction temperature

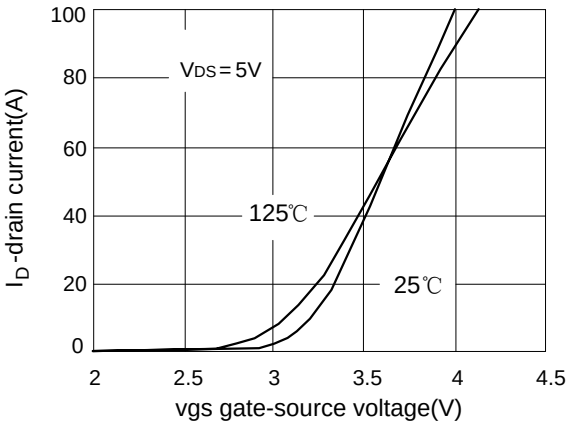


Fig.3 transfer characteristics

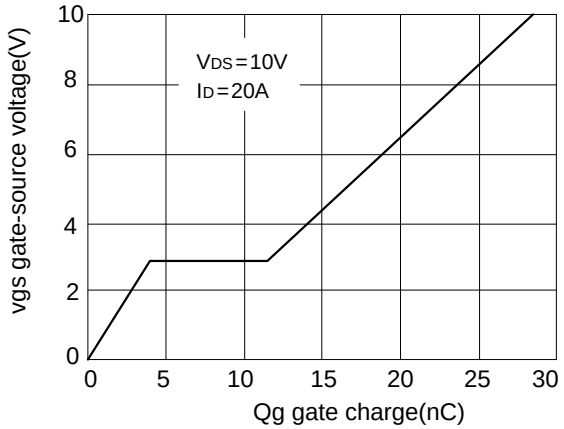


Fig.4 gate charge

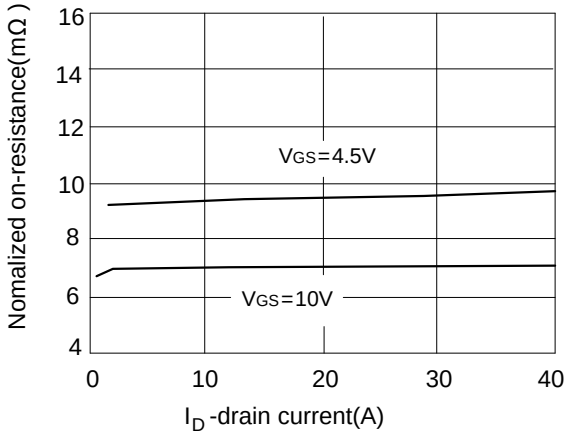


Fig.5 rdson-drain current

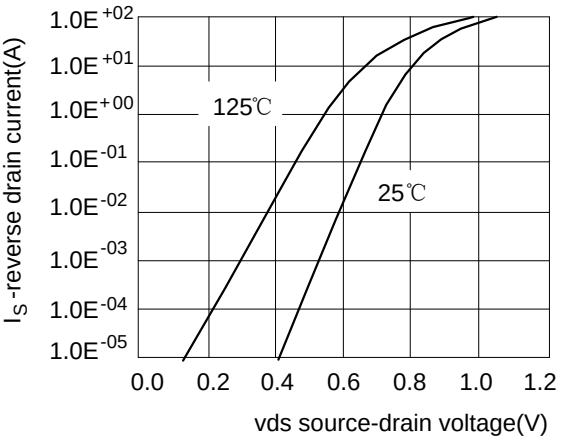


Fig.6 source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

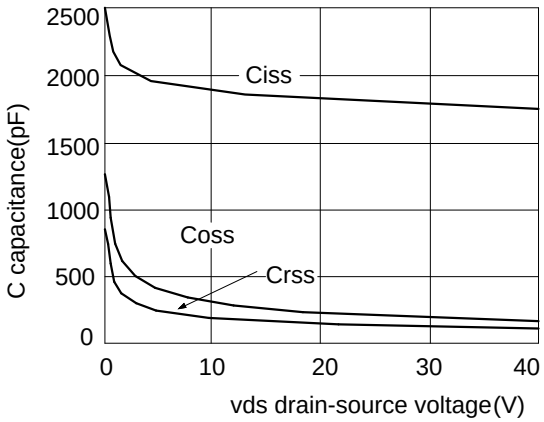


Fig.7 capacitance vs vds

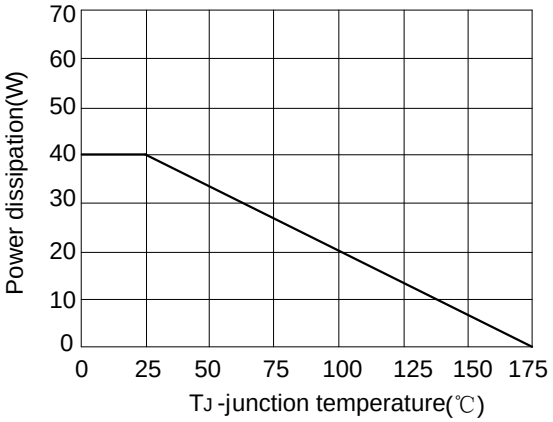


Fig.8 power de-rating

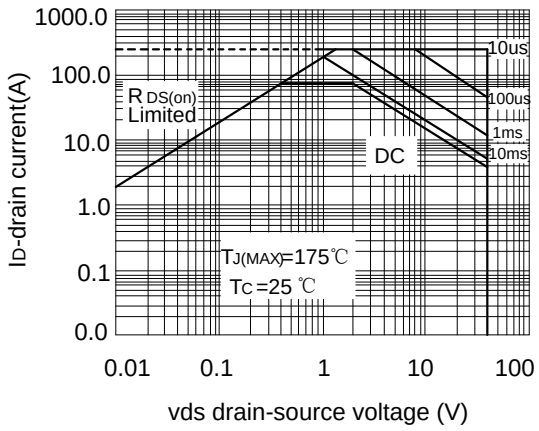


Fig.9 safe operation area

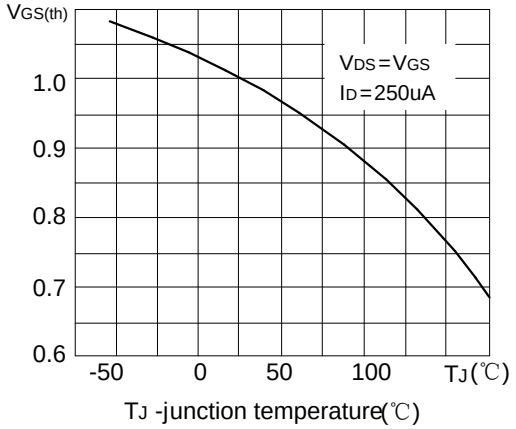


Fig.10 $V_{GS(th)}$ vs junction temperature

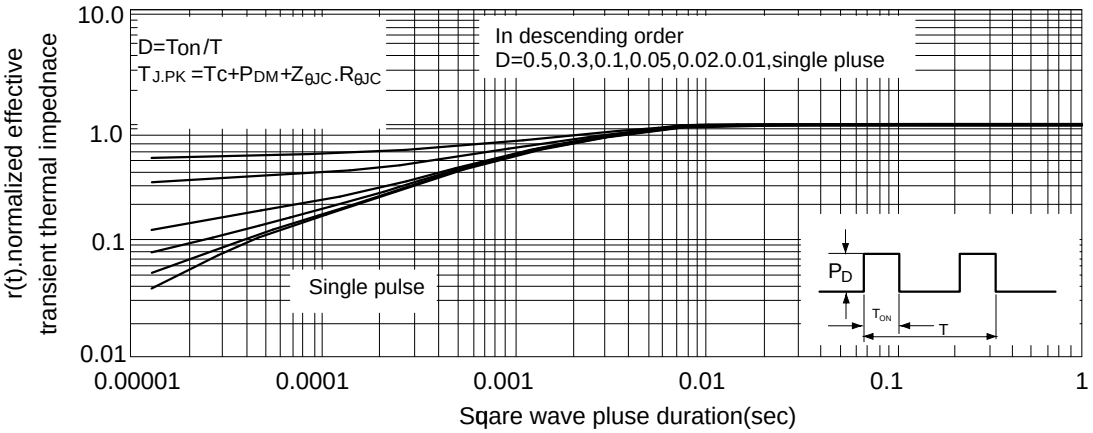
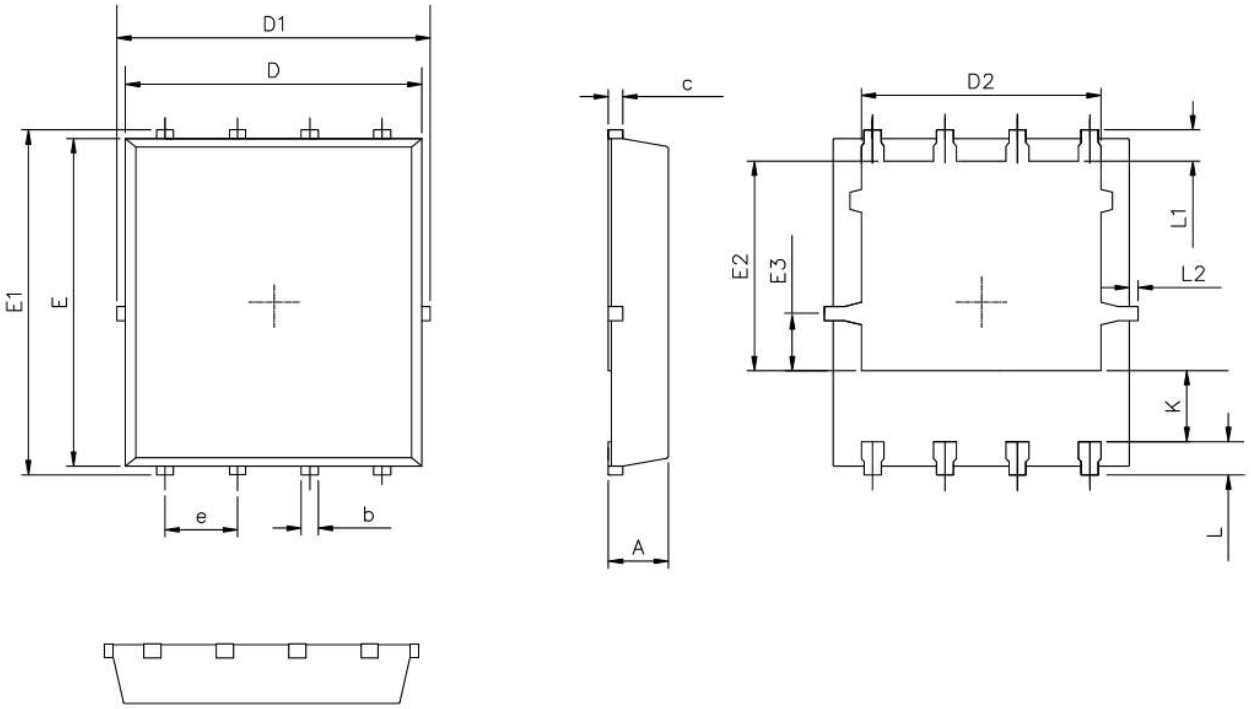


Fig.11 normalized maximum transient thermal impednace

■ PDFN5X6-8L PACEAGE 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

RECOMMENDED LAND PATTERN