

■ PRODUCT CHARACTERISTICS

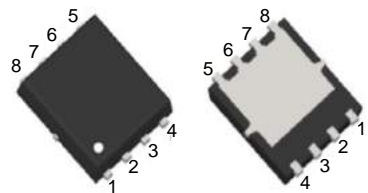
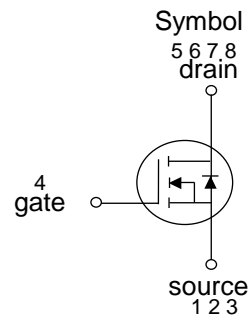
V _{DSS}	40V
R _{DS(on)} Typ(@V _{GS} =4.5V)	9.5mΩ
R _{DS(on)} Typ(@V _{GS} =10V)	6.5mΩ
I _D	60A

■ 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°C, 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 current	I _{DM}	200	A
Avalanche energy single pulsed	E _{AS}	400	mJ
Power dissipation	P _D	40	W
Junction temperature	T _J	+150	°C
Storage temperature	T _{STG}	-55~ +175	°C

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

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	40	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V, V_{GS}=0$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On characteristics						
Gate Threshold Voltage	$I_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	-	2.5	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=20A$	-	6.5	8.0	m Ω
		$V_{GS}=4.5V, I_D=20A$	-	9.5	13	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=10V, I_D=20A$	10	-	-	S
Dynamic characteristics						
Input Capacitance	C_{iss}	$V_{DS}=20V, V_{GS}=0V,$ $F=1.0MHz$	-	1800	-	pF
Output Capacitance	C_{oss}		-	280	-	pF
Reverse Transfer Capacitance	C_{rss}		-	190	-	pF
Switching characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=20V, I_D=2A, R_L=1\Omega$ $V_{GS}=10V, R_G=3\Omega$	-	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}	$T_J = 25^\circ\text{C}, I_F = 20A$ $di/dt = 100A/\mu s$	-	29	-	nS
Reverse Recovery Charge	Q_{rr}		-	26	-	nS

■ TYPICAL CHARACTERISTICS

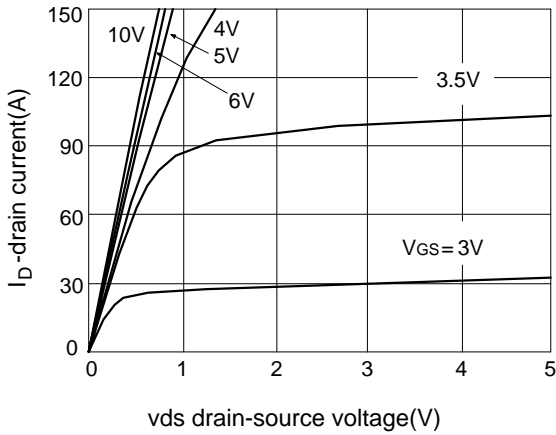


Fig.1 output characteristics

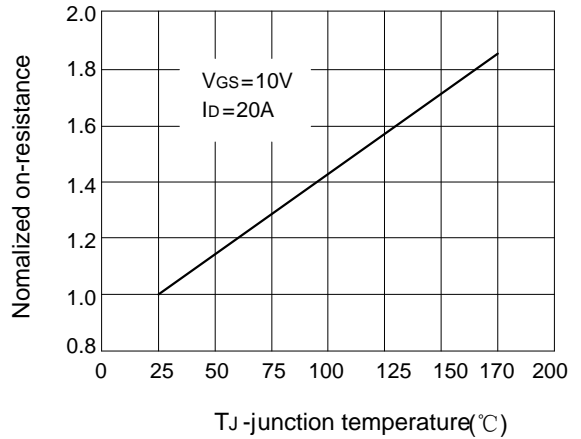


Fig.2 rdson-junction temperature

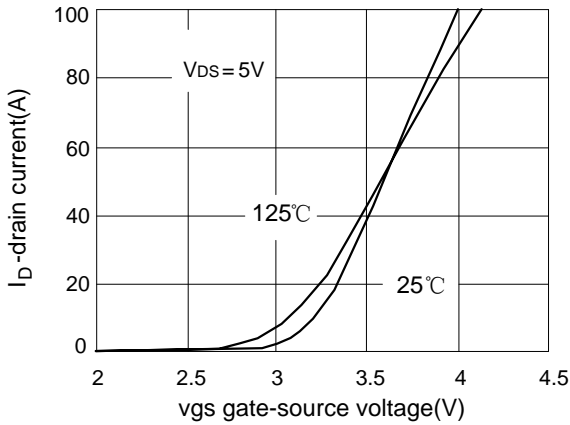


Fig.3 transfer characteristics

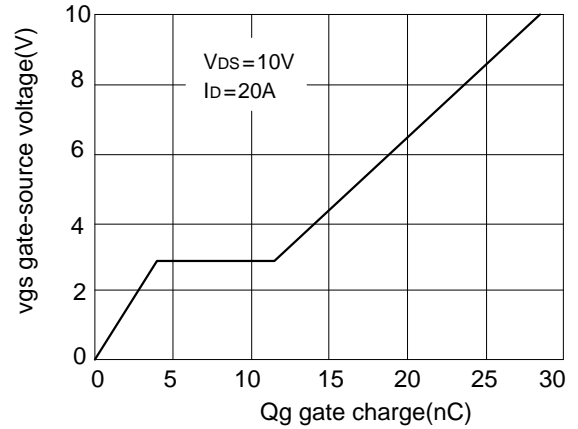


Fig.4 gate charge

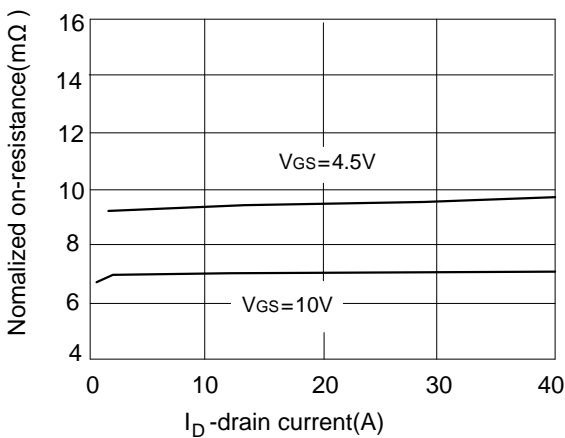


Fig.5 rdson-drain current

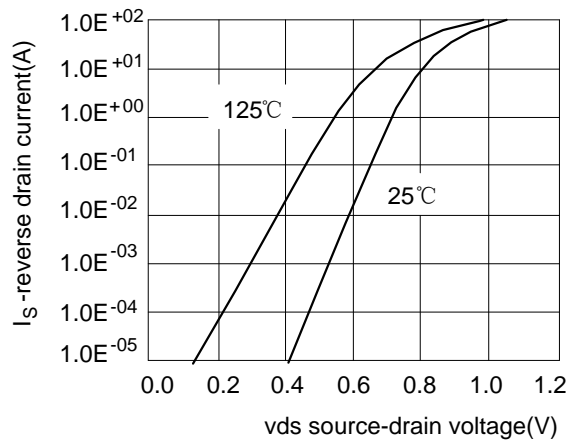


Fig.6 source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

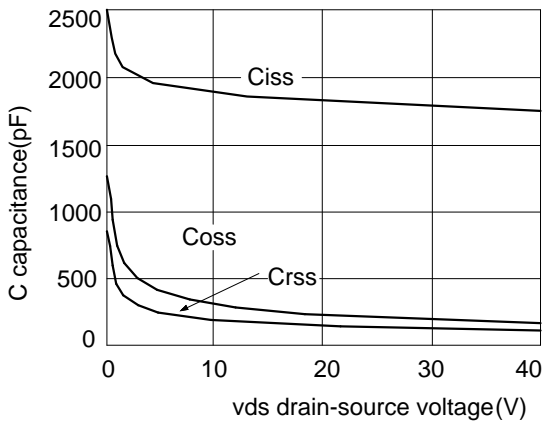


Fig.7 capacitance vs vds

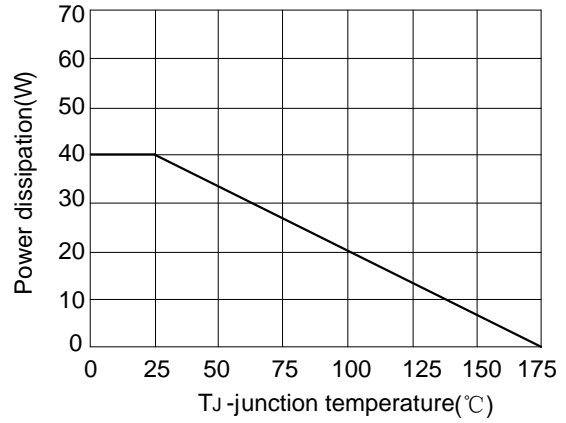


Fig.8 power de-rating

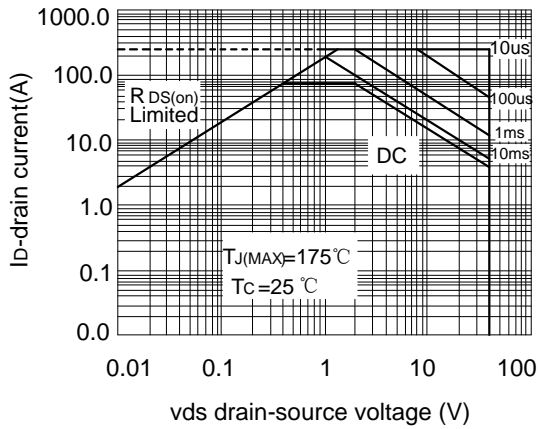


Fig.9 safe operation area

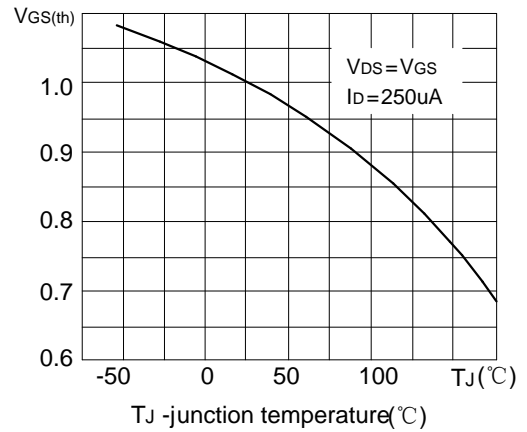


Fig.10 VGS(th) vs junction temperature

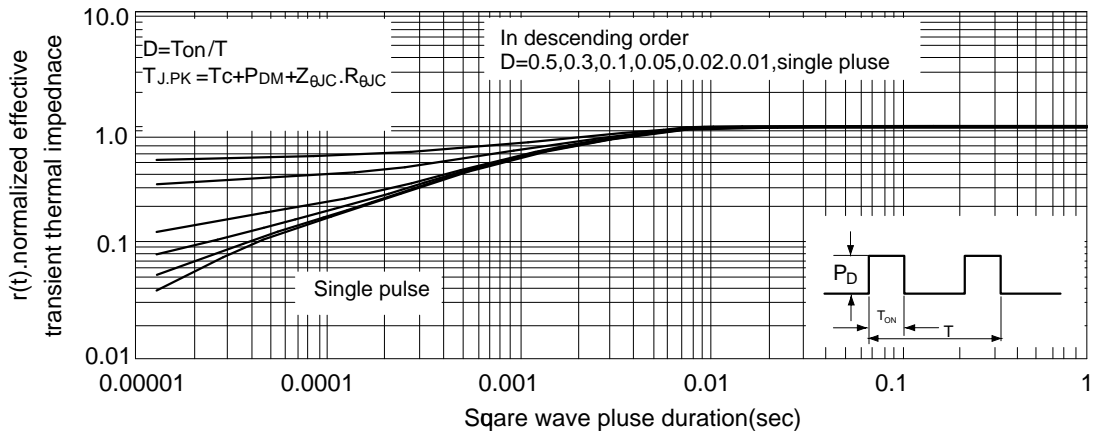
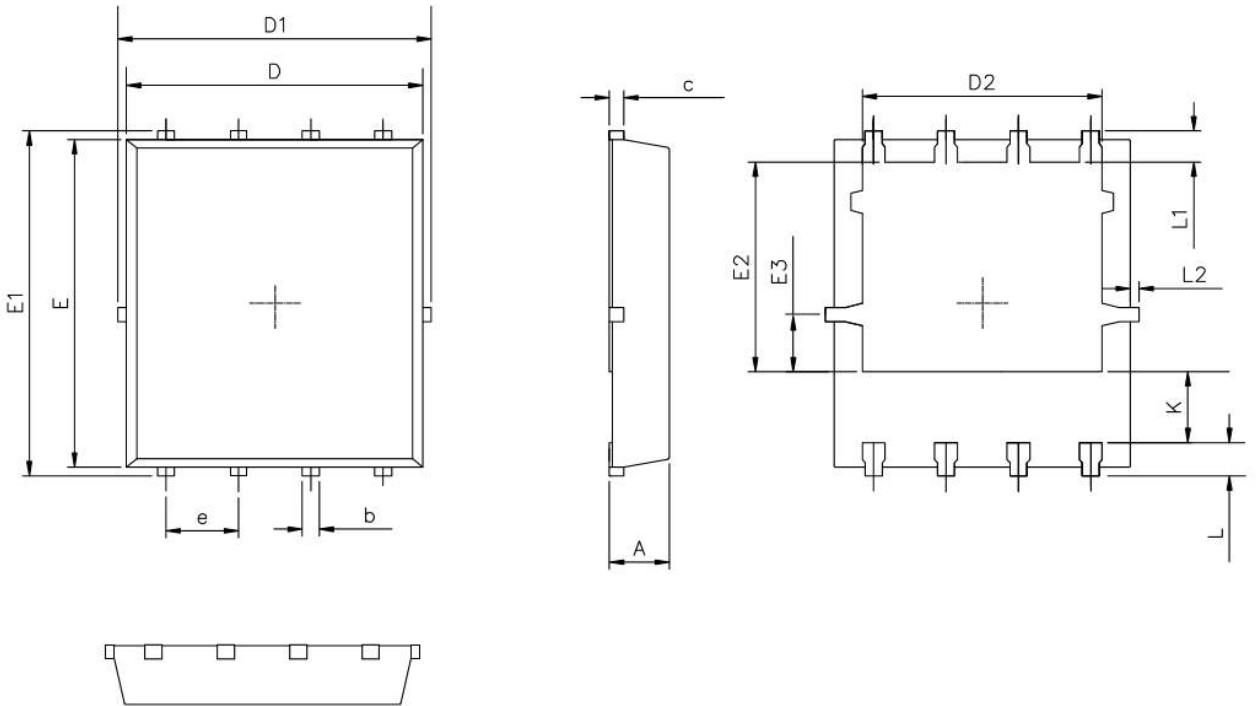
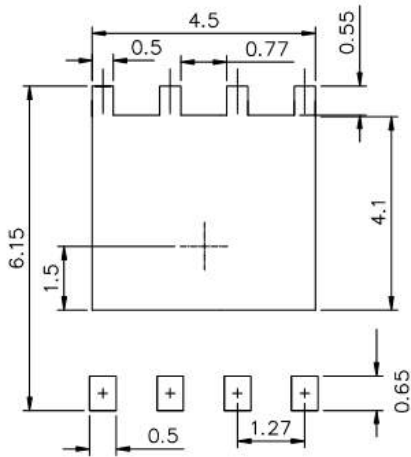


Fig.11 normalized maximum transient thermal impedance

■ PDFN5X6-8L PACEAGE 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