

■ PRODUCT CHARACTERISTICS

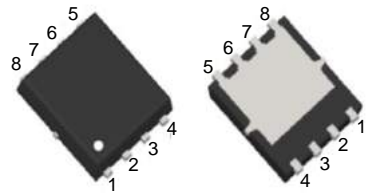
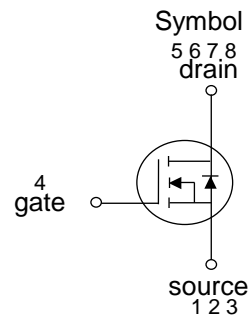
V _{DSS}	40V
R _{DS(on)} Typ(@V _{GS} =4.5V)	9.5mΩ
R _{DS(on)} Typ(@V _{GS} =10V)	6.5mΩ
I _D	60A

■ 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	MOT4180J	PDFN3X3-8L	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°C, 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	I _{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 _{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 =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}	T _J = 25°C, I _F = 20A di/dt = 100A/μs	-	29	-	nS
Reverse Recovery Charge	Q _{rr}		-	26	-	nS

■ TYPICAL CHARACTERISTICS

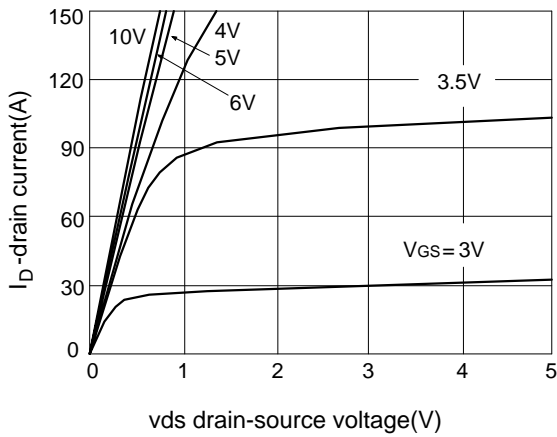


Fig.1 output characteristics

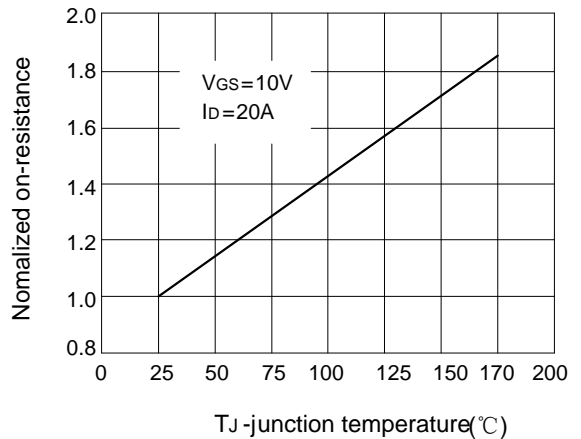


Fig.2 rdson-junction temperature

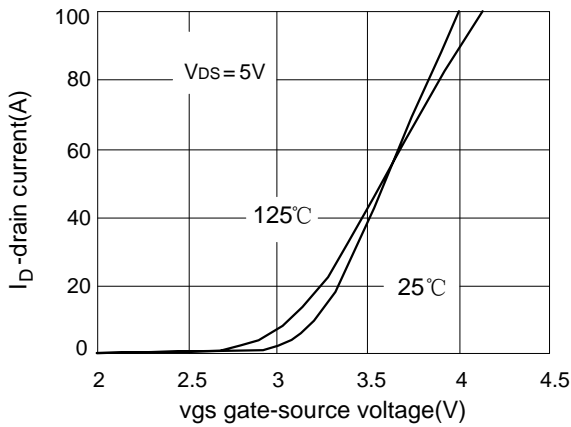


Fig.3 transfer characteristics

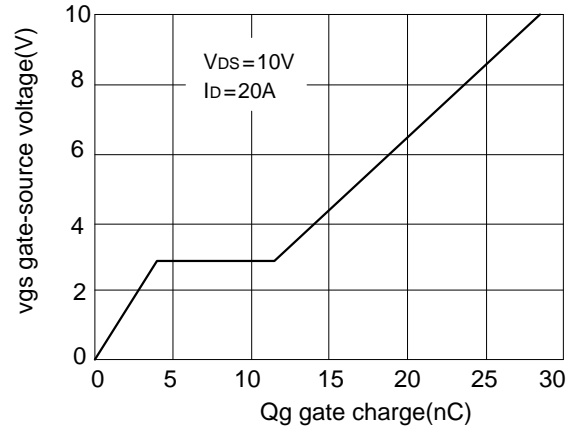


Fig.4 gate charge

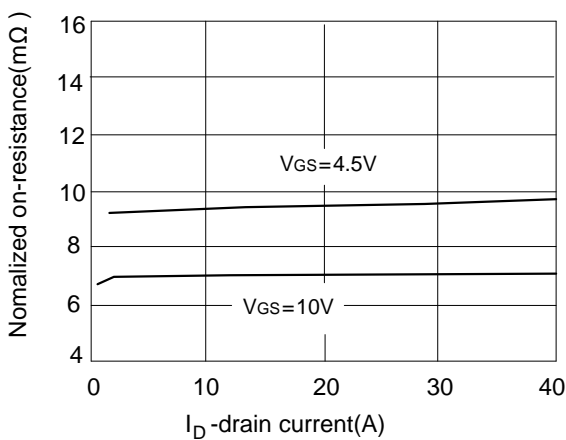


Fig.5 rdson-drain current

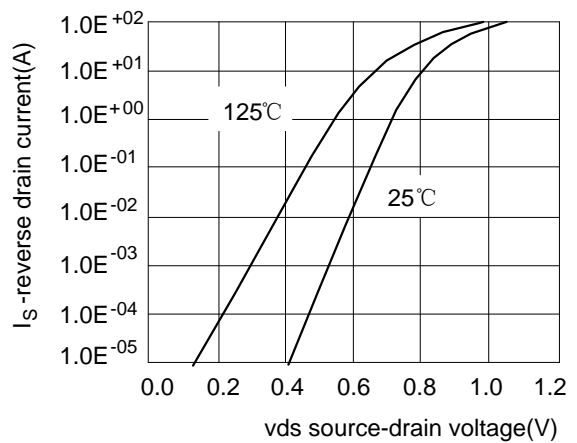


Fig.6 source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

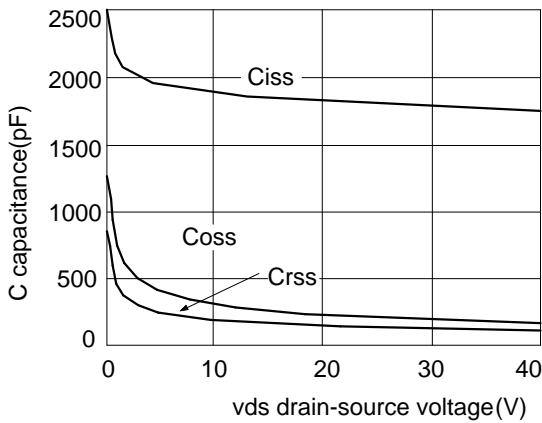


Fig.7 capacitance vs vds

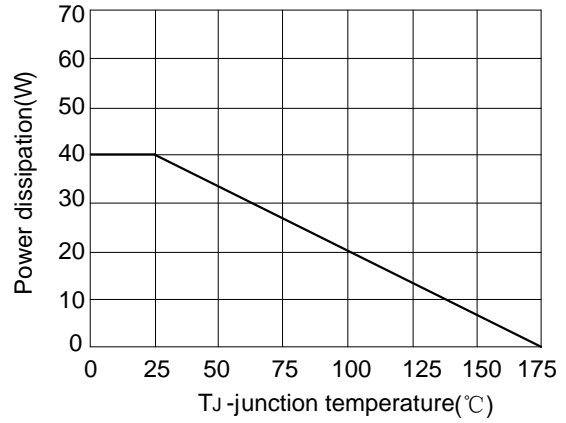


Fig.8 power de-rating

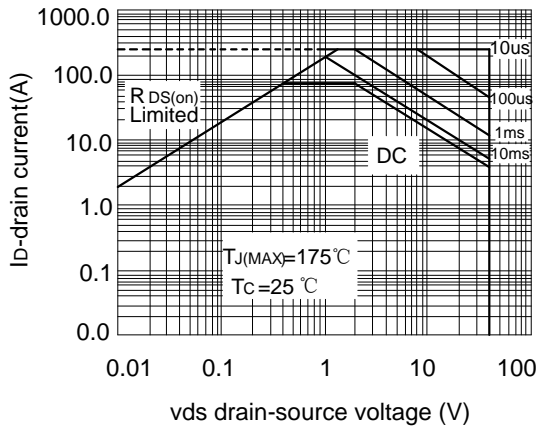


Fig.9 safe operation area

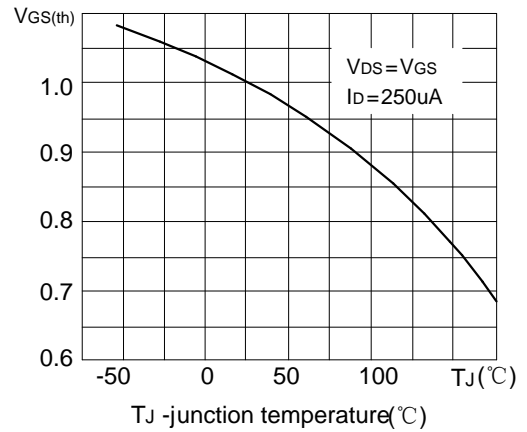


Fig.10 VGS(th) vs junction temperature

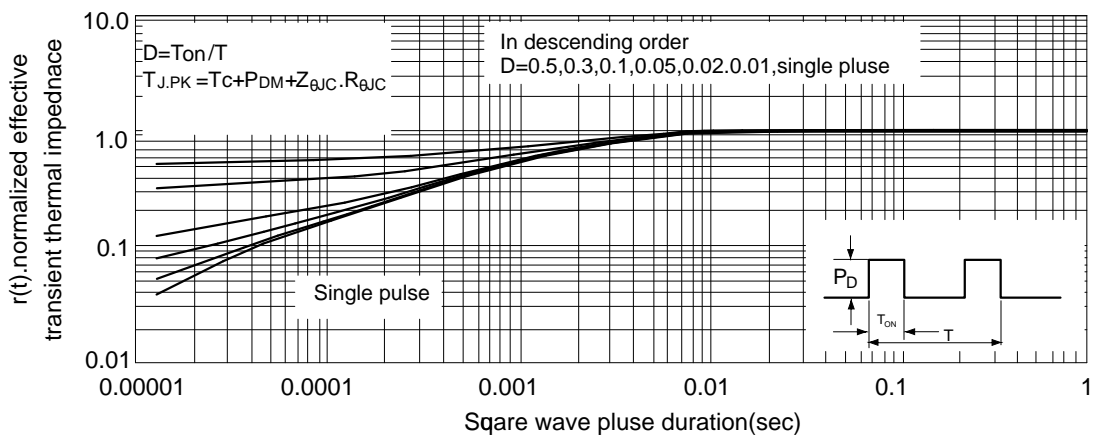
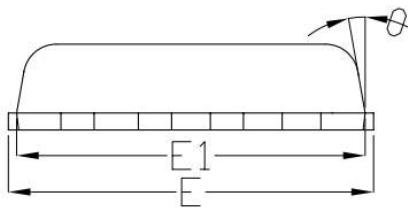
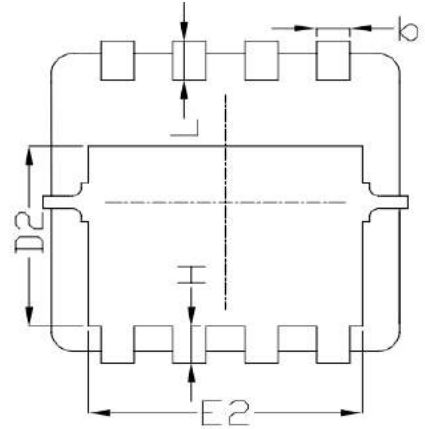
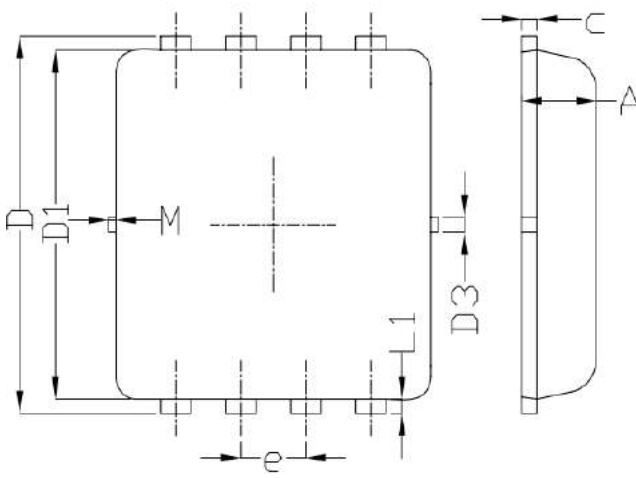
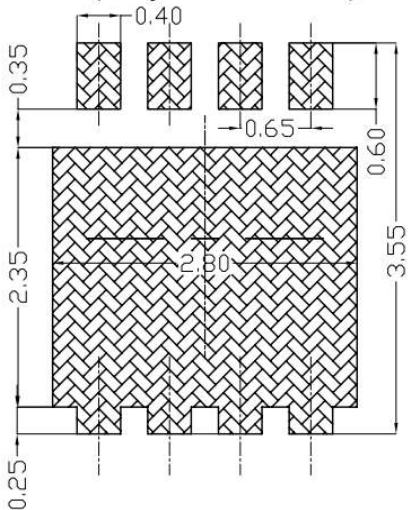


Fig.11 normalized maximum transient thermal impedance

■ PDFN3X3-8L PACEAGE MECHANICAL DATA



Land Pattern
(Only for Reference)



SYMBOL	DIMENSIONAL REOMTS		
	MIN	NOM	MAX
A	0.70	0.75	0.80
b	0.25	0.30	0.35
c	0.10	0.15	0.25
D	3.25	3.35	3.45
D1	3.00	3.10	3.20
D2	1.78	1.88	1.98
D3	---	0.13	---
E	3.20	3.30	3.40
E1	3.00	3.15	3.20
E2	2.39	2.49	2.59
e	0.65BSC		
H	0.30	0.39	0.50
L	0.30	0.40	0.50
L1	---	0.13	---
θ	---	10°	12°
M	*	*	0.15

* Not specified