

PRODUCT CHARACTERISTICS

VDSS	30V
$R_{DS(on)}$ typ(@ $V_{GS}=10V$)	2.5m Ω
$R_{DS(on)}$ typ(@ $V_{GS}=4.5V$)	4.0m Ω
ID	110A

APPLICATIONS

- Portable Equipment and Battery Powered systems.
- Power Management in Notebook Computer

FEATURES

- Lower $R_{DS(ON)}$ to Minimize Conduction Losses
- Reliable and Rugged
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested

ORDER INFORMATION

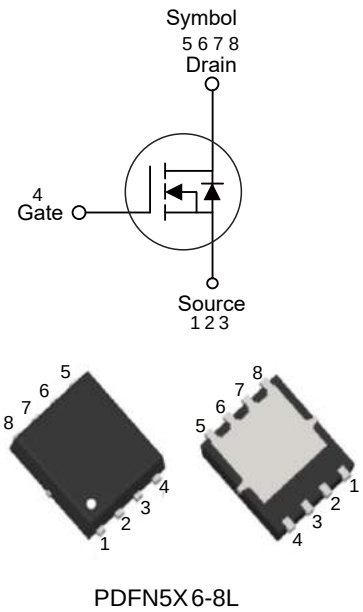
Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	MOT3140G	PDFN5X6	5000Pieces/Reel

ABSOLUTE MAXIMUM RATINGS ($T_J=25^{\circ}C$ Unless Otherwise Noted)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	30	V
Gate-Source Voltage	V_{GSS}	± 20	V
Continuous Drain Current	I_D	110	A
Continuous Drain Current ($T_C=100^{\circ}C$)	I_D	77.8	A
Pulsed Drain Current	I_{DM}	440	A
Power Dissipation	P_D	68	W
Single pulse avalanche energy	E_{AS}	350	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 ~ +150	$^{\circ}C$

THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Case	θ_{JC}	1.83	$^{\circ}C/W$



■ ELECTRICAL CHARACTERISTICS (T_C=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min.	Typ.	Max.	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V I _D =250μA	30	-	-	V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =30V, V _{GS} =0V	-	-	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	1.6	2.5	V
Drain-Source On-State Resistance	R _{DS(ON)}	V _{GS} =10V, I _D =20A	-	2.5	4.0	mΩ
		V _{GS} =4.5V, I _D =20A	-	4.5	7.0	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V, I _D =20A	10	-	-	S
Dynamic characteristics						
Input Capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, F=1.0MHz	-	3009	-	PF
Output Capacitance	C _{oss}		-	451	-	PF
Reverse Transfer Capacitance	C _{rss}		-	403	-	PF
Switching characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =15V, I _D =20A V _{GS} =4.5V, R _{GEN} =1.8Ω	-	20	-	nS
Turn-on Rise Time	t _r		-	15	-	nS
Turn-Off Delay Time	t _{d(off)}		-	60	-	nS
Turn-Off Fall Time	t _f		-	10	-	nS
Total Gate Charge	Q _g	V _{DS} =15V, I _D =20A, V _{GS} =10V	-	66.3	-	nC
Gate-Source Charge	Q _{gs}		-	7.0	-	nC
Gate-Drain Charge	Q _{gd}		-	17.2	-	nC
Drain-source diode characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V, I _S =20A	-	-	1.2	V
Diode Forward Current	I _S	-	-	-	110	A
Reverse Recovery Time	t _{rr}	TJ = 25°C, IF = 20A	-	29	-	nS
Reverse Recovery Charge	Q _{rr}	di/dt = 100A/μs	-	32	-	nC

■ TYPICAL CHARACTERISTICS

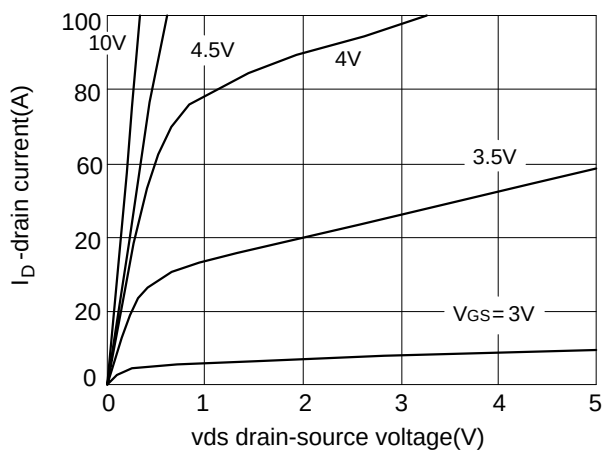


Fig.1 output characteristics

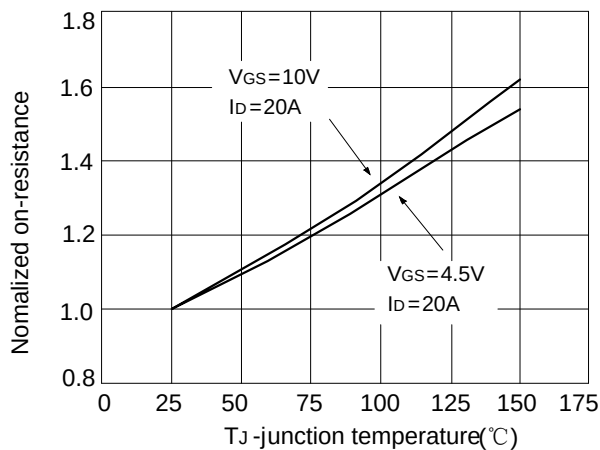


Fig.2 rdson-junction temperature

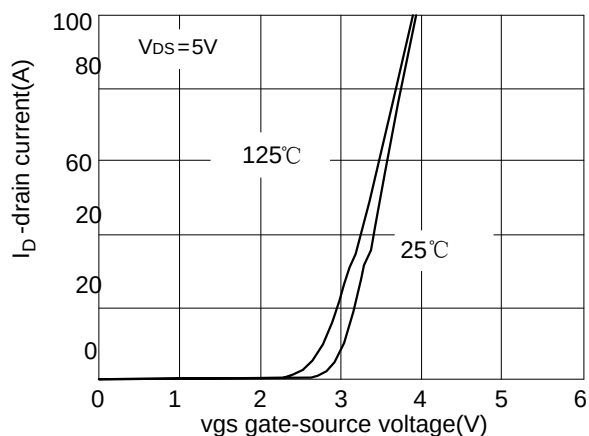


Fig.3 transfer characteristics

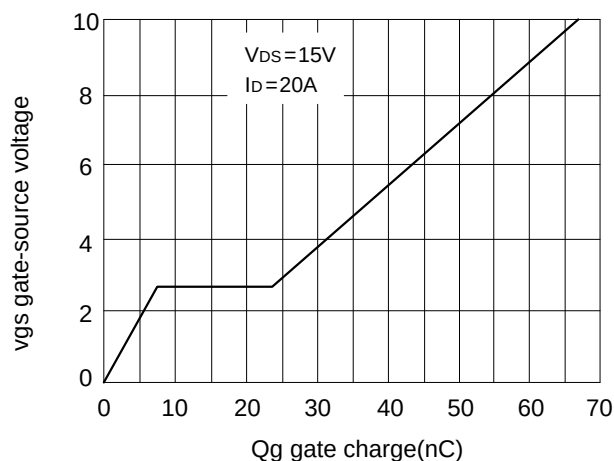


Fig.4 gate charge

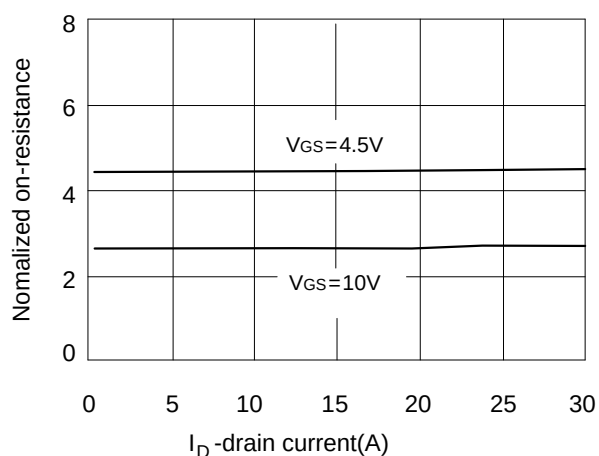


Fig.5 rdson-drain current

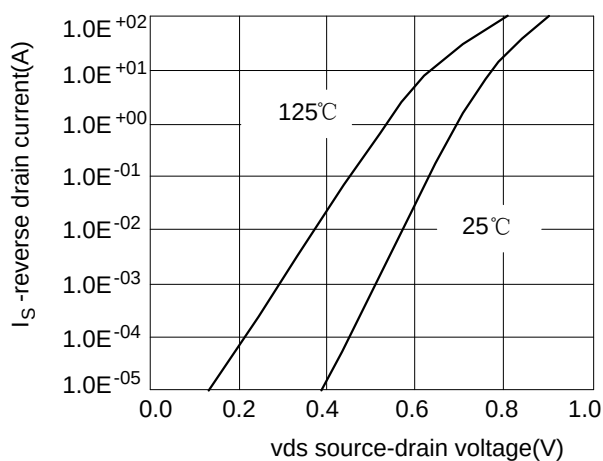


Fig.6 source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

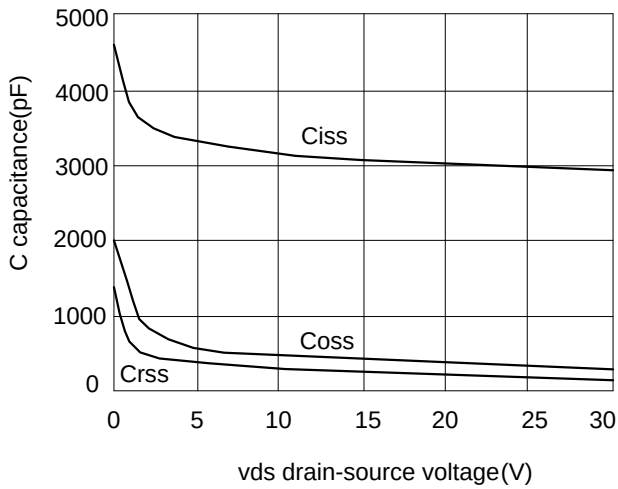


Fig.7 capacitance vs vds

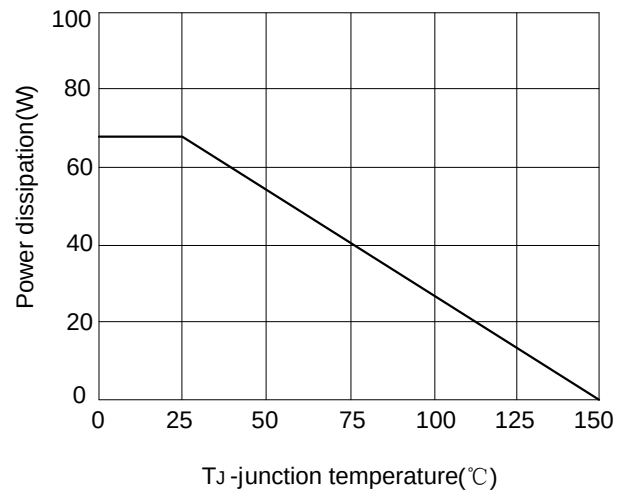


Fig.8 power de-rating

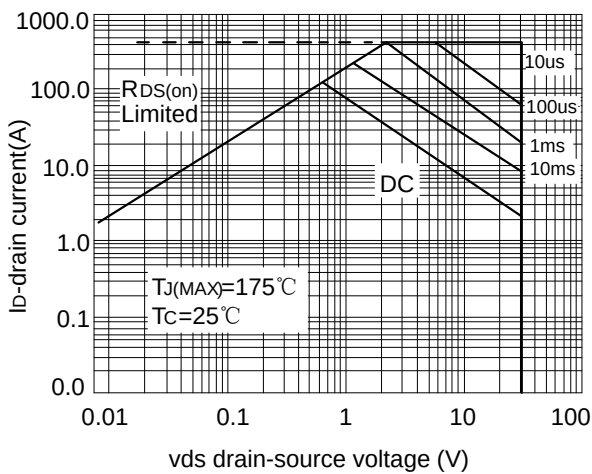


Fig.9 safe operation area

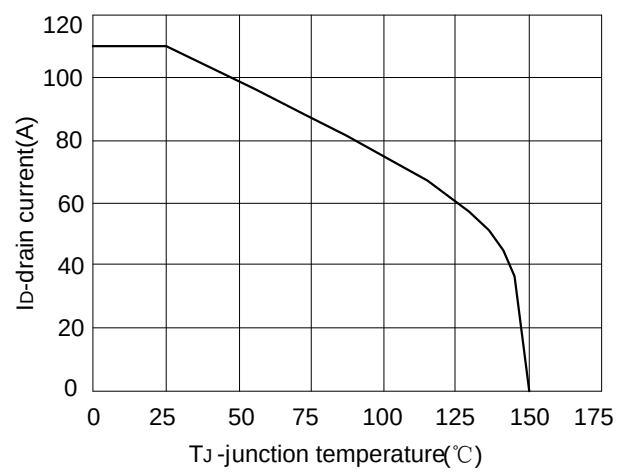


Fig.10 current vs junction temperature

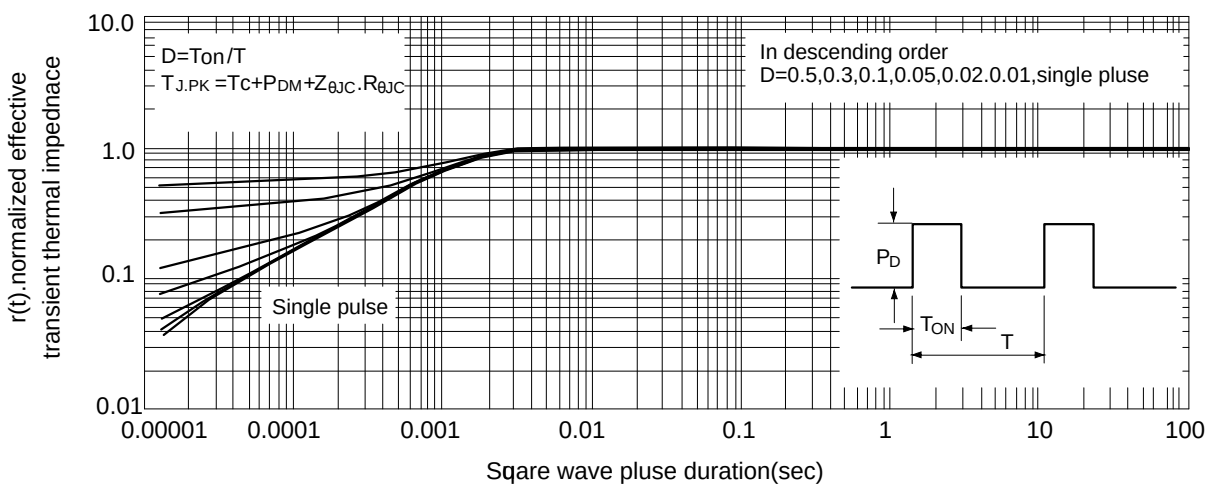
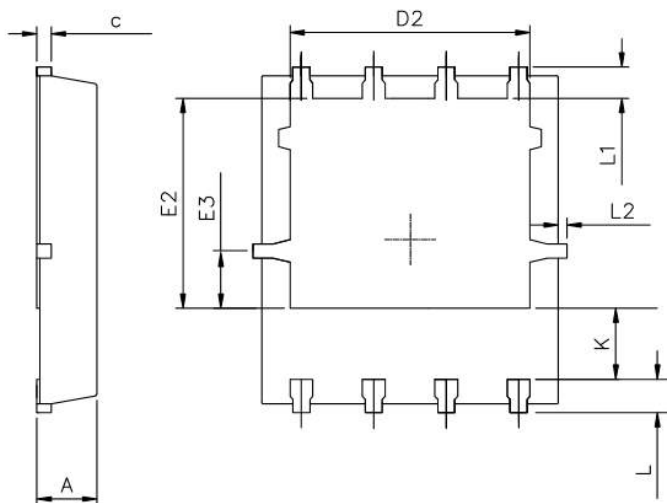
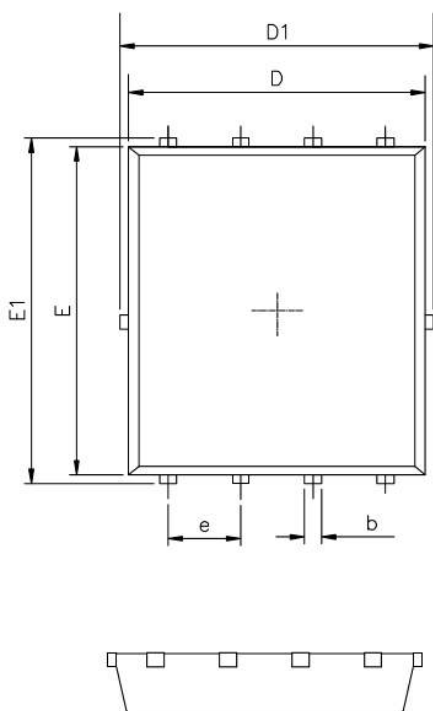
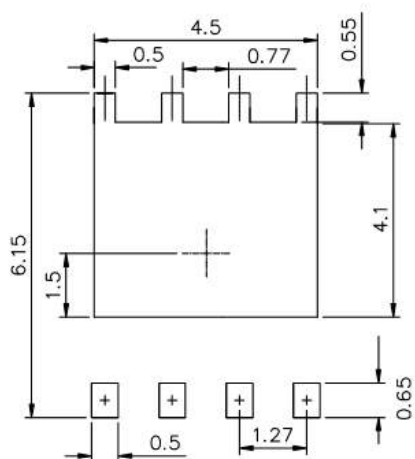


Fig.11 normalized maximum transient thermal impedance

■ 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