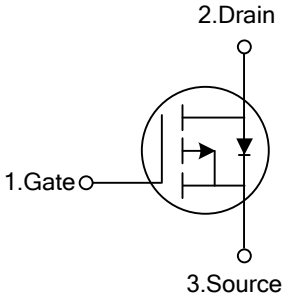
■ PRODUCT CHARACTERISTICS

VDSS	-30V
R_{DS}(on)typ(@V_{GS} =-10 V)	7.4mΩ
R_{DS}(on)typ(@V_{GS} =-4.5 V)	11mΩ
ID	-30A

Symbol

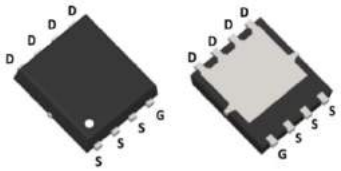


■ APPLICATIONS

* Power management
* Load switch

■ FEATURES

* High density cell design for ultra low Rdson
* Low gate charge
*Pb-free lead plating



PDFN3X3-8L

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen- Free	Halogen		
N/A	MOT3390J	PDFN3X3	5000 pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS (T_J=25°C Unless Otherwise Noted)

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Drain Current	Continuous	I_D	-30	A
	Pulsed (Note 1)	I_{DM}	-80	A
Drain-Source diode forward current		I_S	-30	A
Power Dissipation		P_D	40	W
Operating Junction Temperature		T_J	-55-150	°C

■ THERMAL CHARACTERISTICS

PARAMETER	SYMBOL	RATINGS	UNIT
Thermal resistance junction to ambient	θ_{JA}	3.13	°C/W

■ 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	-30	-33	-	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 (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-1.0	-1. 5	-2.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-10V, I_D=-15A	-	7.4	10	mΩ
		V_{GS}=-4.5V, I_D=-10A	-	11	15	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=-15A	30	-	-	S
Dynamic characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=-15V,V_{GS}=0V, F=1.0MHz	-	4222	-	PF
Output Capacitance	C_{oss}		-	480.5	-	PF
Reverse Transfer Capacitance	C_{rss}		-	448.6	-	PF
Switching characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-15V, ID=-15A, V_{GS}=-10V,R_{GEN}=3Ω	-	15	-	nS
Turn-on Rise Time	t_r		-	11	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	44	-	nS
Turn-Off Fall Time	t_f		-	21	-	nS
Total Gate Charge	Q_g	V_{DS}=-15V,I_D=-15A,V_{GS}=-10V	-	81.3	-	nC
Gate-Source Charge	Q_{gs}		-	13.8	-	nC
Gate-Drain Charge	Q_{gd}		-	8.3	-	nC
Drain-source diode characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=-30A	-	-	-1.2	V

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production

■ TYPICAL CHARACTERISTICS

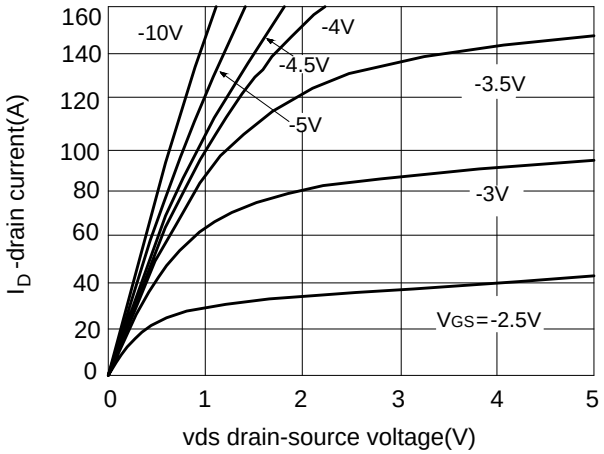


Fig.1 output characteristics

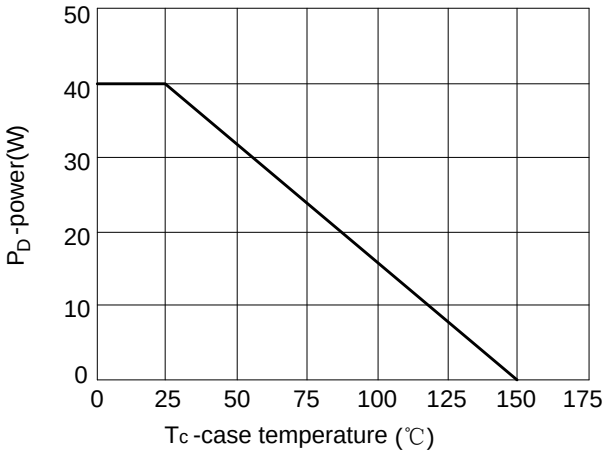


Fig.2 power dissipation

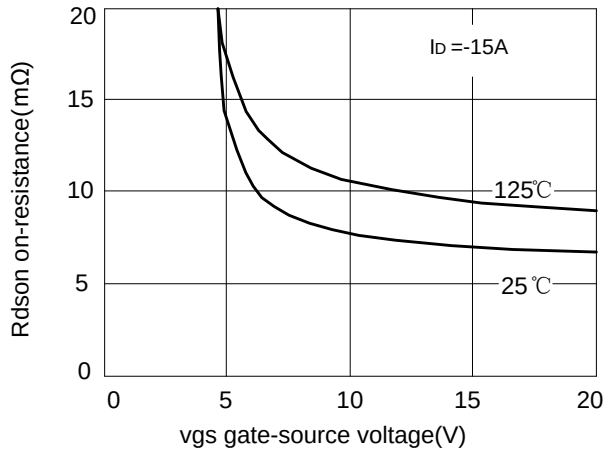


Fig.3 rdson vs vgs

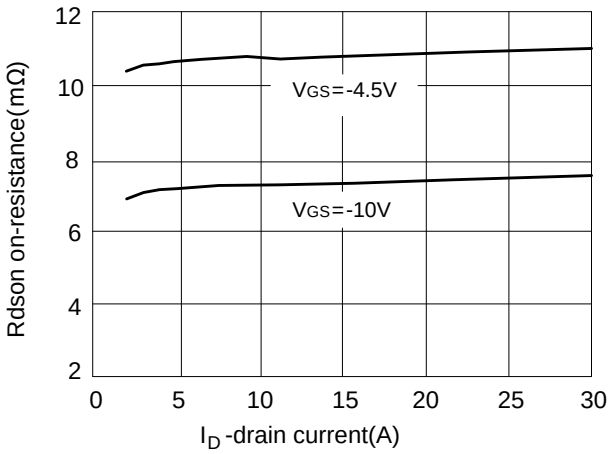


Fig.4 drain-source on-resistance

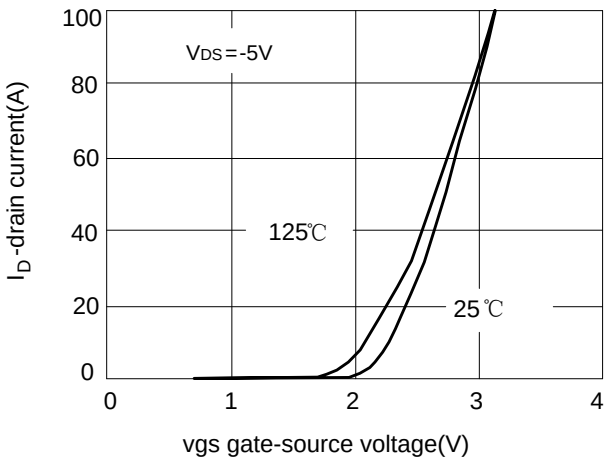


Fig.5 transfer characteristics

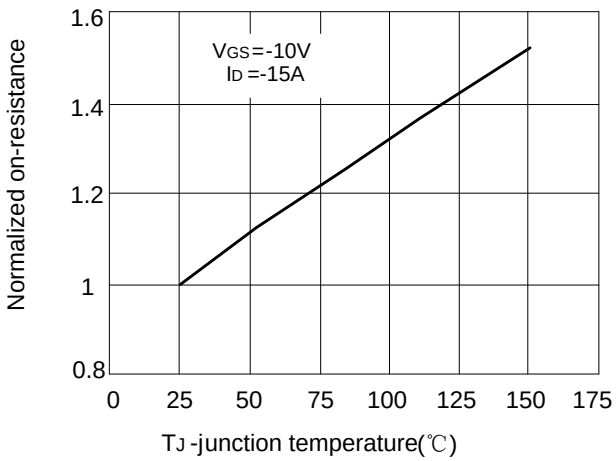


Fig.6 drain-source on-resistance

■ TYPICAL CHARACTERISTICS

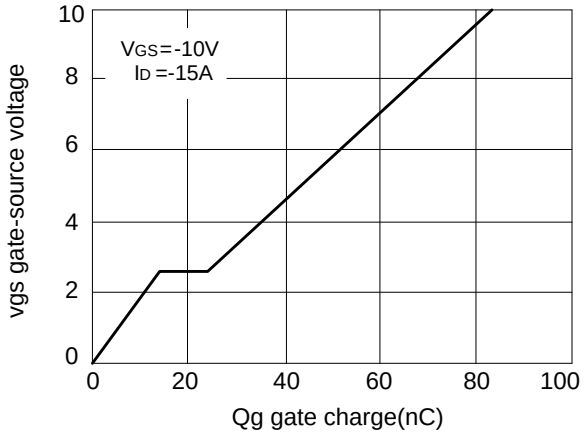


Fig.7 gate charge

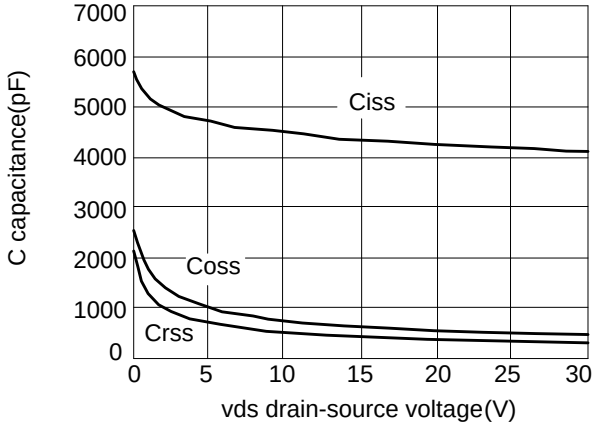


Fig.8 capacitance vs vds

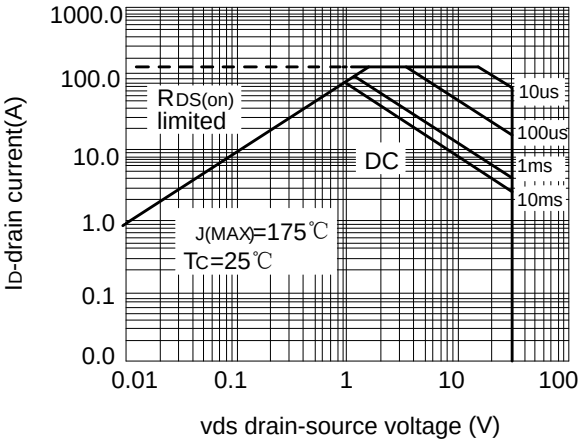


Fig.9 safe operation area

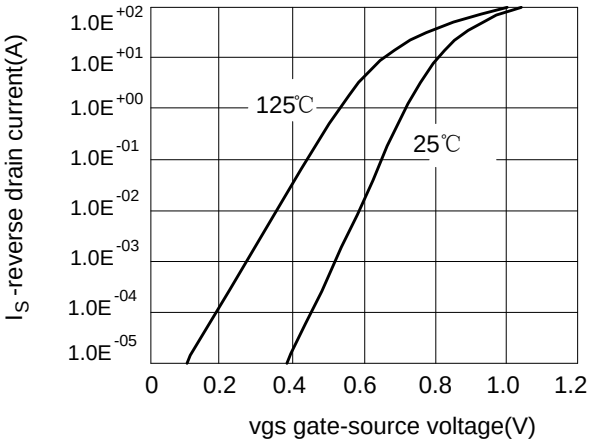


Fig.10 source-drain diode forward

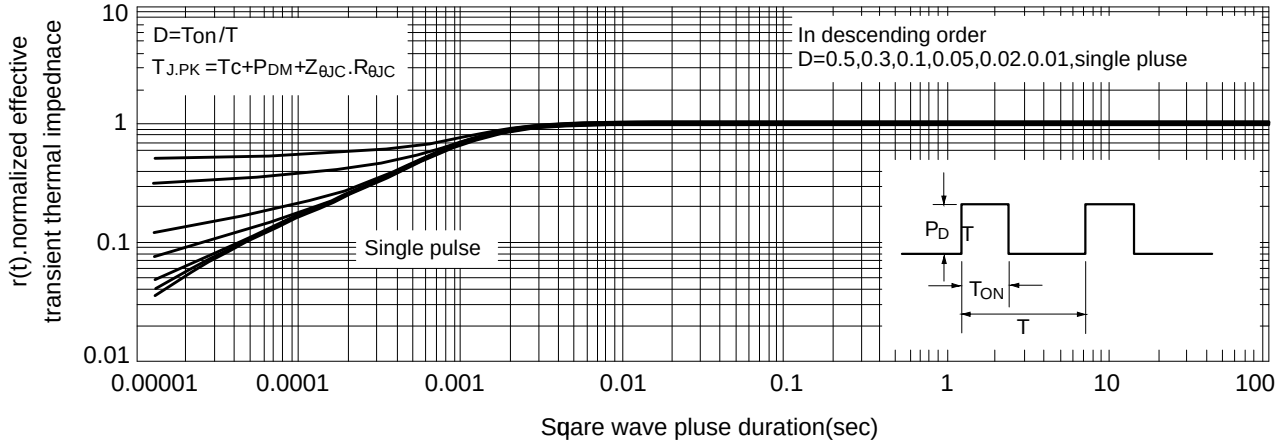
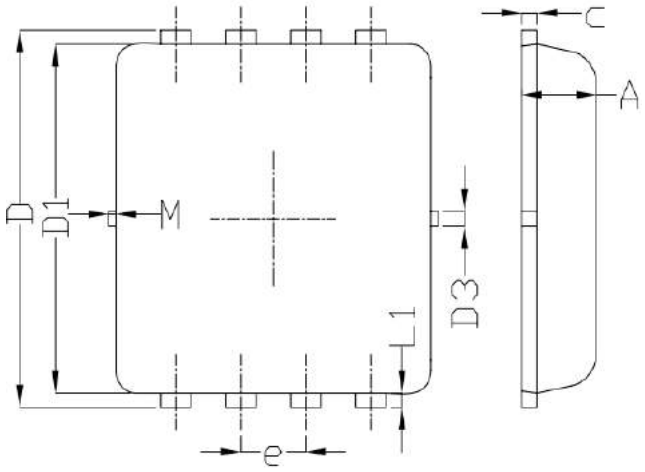
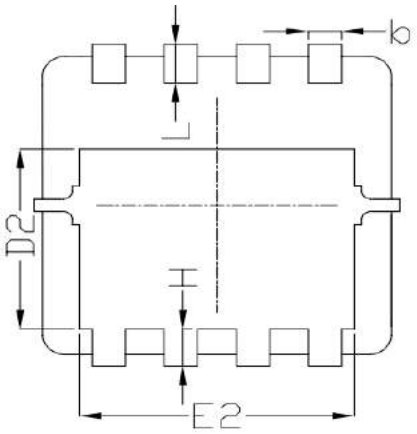
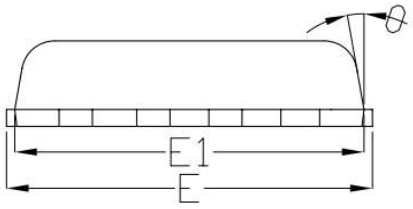


Fig.11 normalized maximum transient thermal impednace

■ PDFN3X3-8L Package Mechanical Data







SYMBOL	DIMENSIONAL REQMTS		
	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			

Land Pattern
(Only for Reference)