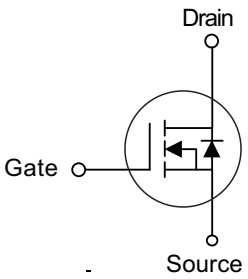
■ PRODUCT CHARACTERISTICS

VDSS	30V
R_{DS}(on)typ(@V_{GS}=10 V)	3.6mΩ
R_{DS}(on)typ(@V_{GS}=4.5 V)	5.3mΩ
ID	85A

Symbol

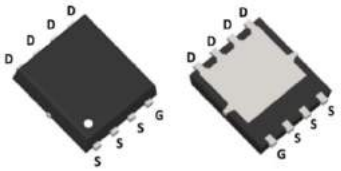


■ APPLICATIONS

- 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



PDFN3X3-8L

■ ORDER INFORMATION

Order codes		Package	
Halogen-Free	Halogen		
N/A	MOT3145J	PDFN3X3	5000pieces/Reel

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

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DSS}	30	V
Gate-Source Voltage		V_{GSS}	±20	V
Maximum Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{STG}	-55 to 150	°C
Pulse Drain Current Tested	T_C=25°C	I_{DM}①	85	A
Continuous Drain Current	T_C=25°C	I_D	76	A
	T_C=100°C	I_D	48	A
Maximum Power Dissipation	T_C=25°C	P_D	31	W
	T_C=100°C	P_D	12.5	W
Avalanche Current, Single pulse	L=0.1mH	I_{AS}②	28	A
Avalanche Energy, Single pulse	L=0.1mH	E_{AS}②	39	mJ

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

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Static electrical characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_{DS}=250uA	30	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=24V, V_{GS}=0V	-	-	1	uA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_{DS}=250uA	1.1	1.6	2.1	V
Gate Leakage Current	I_{GSS}	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Drain-Source On-state Resistance	$R_{DS(ON)}$④	V_{GS}=10V, I_{DS}=20A	-	3.6	4.5	mΩ
		V_{GS}=4.5V, I_{DS}=18A	-	5.3	7.2	mΩ
Forward Transconductance	g_{fs}	V_{DS}=5V, I_{DS}=20A	-	22	-	S
Dynamic characteristics⑤						
Gate Resistance	R_G	V_{GS}=0V,V_{DS}=0V,Freq.=1MHz	-	2.2	-	Ω
Input Capacitance	C_{ISS}	V_{GS}=0V,V_{DS}=15V, Freq.=1MHz	-	1859	-	pF
Output Capacitance	C_{OSS}		-	260	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	212	-	pF
Turn-on Delay Time	$td_{(on)}$	V_{GS}=10V,V_{DS}=15V, I_D=1A,R_{GEN}=6Ω	-	9.6	-	nS
Turn-on Rise Time	t_r		-	23.4	-	nS
Turn-off Delay Time	$td_{(off)}$		-	62.8	-	nS
Turn-off Fall Time	t_f		-	23	-	nS
Total Gate Charge	Q_g	V_{GS}=4.5V,V_{DS}=25V I_D=14A	-	26	-	nC
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=25V, I_D=14A	-	48	-	nC
Gate-Source Charge	Q_{gs}		-	3.4	-	nC
Gate-Drain Charge	Q_{gd}		-	14	-	nC
Source-drain characteristics						
Diode Forward Voltage	V_{SD}④	I_{SD}=1A, V_{GS}=0V	-	0.75	1.1	V
Reverse Recovery Time	T_{rr}	I_F=2A, V_R=0V dI$_F$/dt=100A/μs	-	18.2	-	nS
Reverse Recovery Charge	Q_{rr}		-	9.2	-	nC

Note ④：Pulse test (pulse width≤300us, duty cycle≤2%).
Note ⑤：Guaranteed by design, not subject to production testing.

■ TYPICAL CHARACTERISTICS

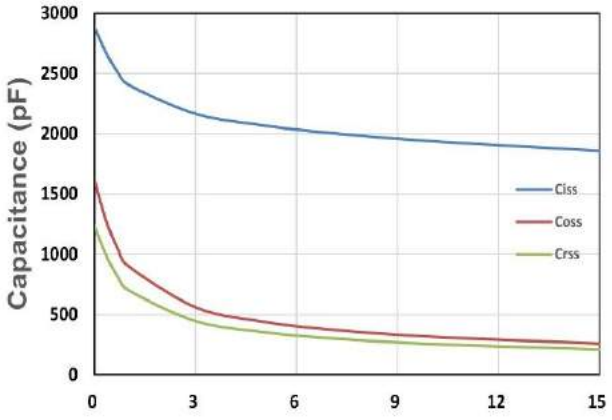


Figure 1. Capacitance

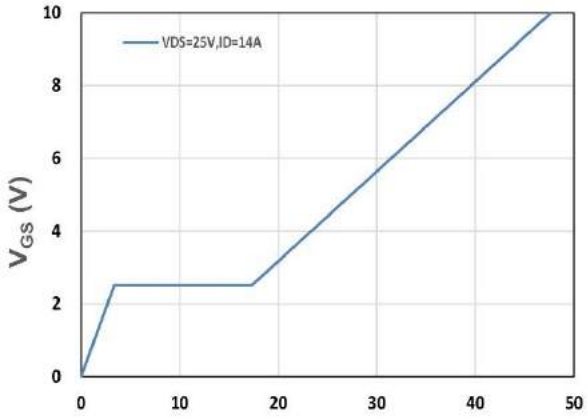


Figure 2. Gate Charge Characteristics

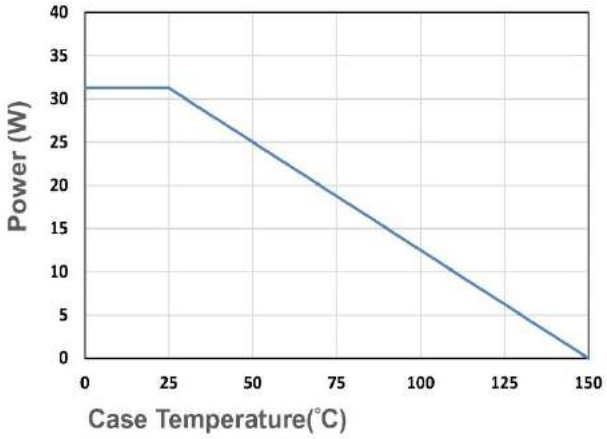


Figure 3. Power Dissipation

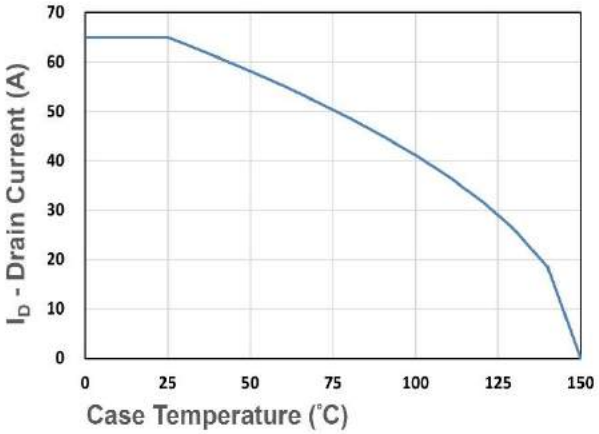


Figure 4. Drain Current

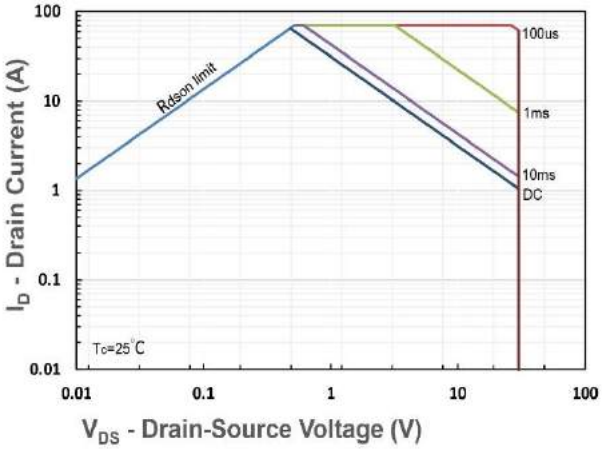


Figure 5. Safe Operating Area

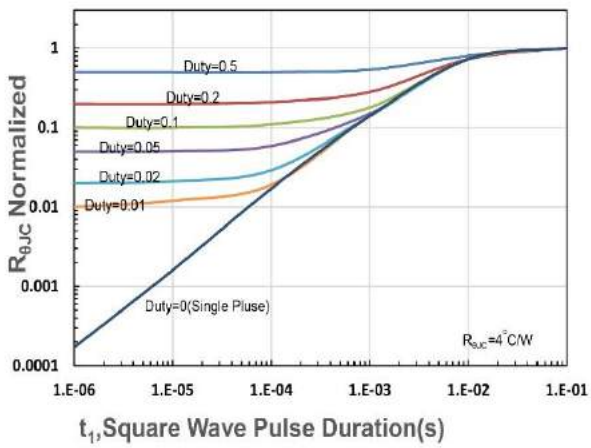
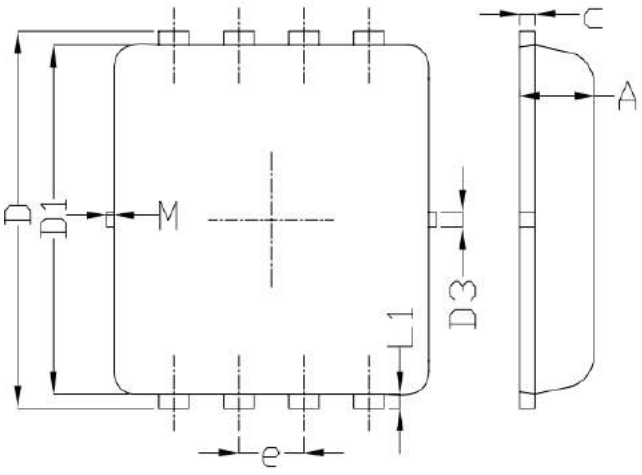
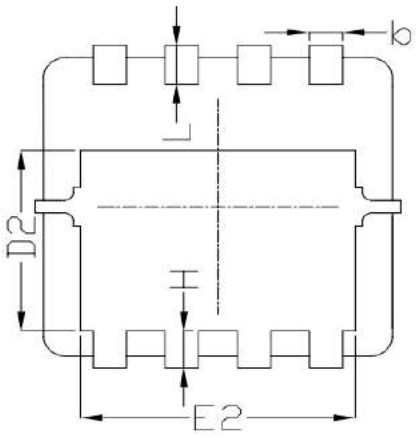
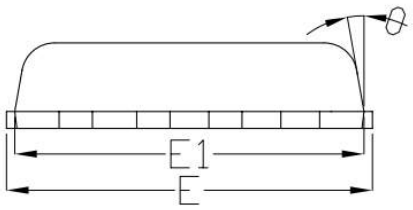


Figure 6. RθJC Transient Thermal Impedance

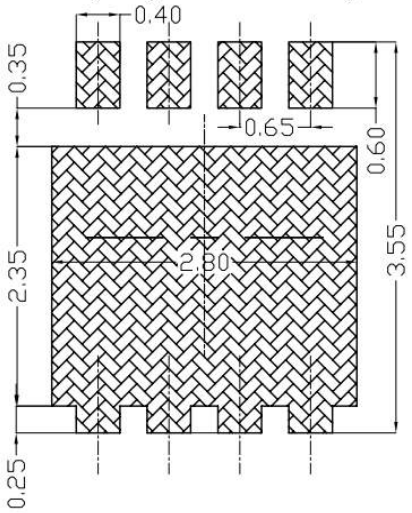
■ PDFN3X3-8L Package Mechanical Data







Land Pattern
(Only for Reference)



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			