

■ PRODUCT CHARACTERISTICS

VDSS	-30V
$R_{DS(on)Typ}(V_{GS} = -4.5V)$	21mΩ
$R_{DS(on)Typ}(V_{GS} = -10V)$	13mΩ
ID	-16A

■ APPLICATIONS

PWM applications

Load switch

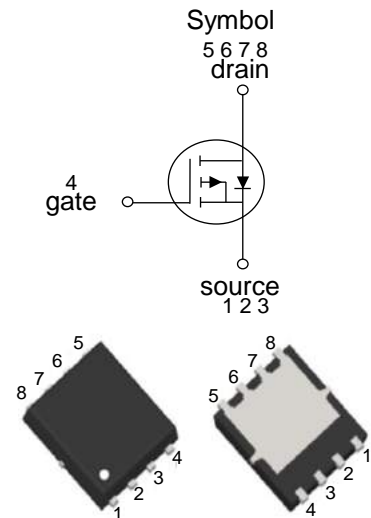
Power management

■ FEATURES

High Power and current handing capability

Lead free product is acquired

Surface mount package



PDFN3X3-8L

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT3718J	PDFN3X 3	5000pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS( $T_C=25^{\circ}C$ , unless otherwise specified)

Parameter	Symbol	Ratings	Unit
Drain-Source Voltage	$V_{DS}$	-30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	-16	A
Continuous Drain Current( $100^{\circ}C$ )	$I_D$	-11.3	A
Pulsed Drain Current	$I_{DM}$	-64	A
Power Dissipation	$P_D$	30	W
Thermal Resistance,Junction-to-Case	$R_{\theta JC}$	4.2	$^{\circ}C/W$
Junction Temperature	$T_J$	+150	$^{\circ}C$
Operation and Storage Temperature	$T_{STG}$	-55 ~ +150	$^{\circ}C$

■ ELECTRICAL CHARACTERISTICS (T<sub>C</sub>=25°C, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-Source Breakdown Voltage	BV <sub>DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =-250μA	-30	-	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V	-	-	-1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±20V, V <sub>DS</sub> =0V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250μA	-1.2	-	-2.5	V
Drain-Source On-State Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =-10V, I <sub>D</sub> =-10A	-	13	18	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-10A	-	21	27	mΩ
Forward Transconductance	g <sub>FS</sub>	V <sub>DS</sub> =-5V, I <sub>D</sub> =-10A	10	-	-	S
Dynamic characteristics						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =-15V, V <sub>GS</sub> =0V, F=1.0MHz	-	1363	-	PF
Output Capacitance	C <sub>oss</sub>		-	250	-	PF
Reverse Transfer Capacitance	C <sub>rss</sub>		-	210	-	PF
Switching characteristics						
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =-30V, R <sub>L</sub> =3Ω, V <sub>GS</sub> =-10V, R <sub>G</sub> =2.5Ω	-	9	-	nS
Turn-on Rise Time	t <sub>r</sub>		-	10	-	nS
Turn-Off Delay Time	t <sub>d(off)</sub>		-	25	-	nS
Turn-Off Fall Time	t <sub>f</sub>		-	10	-	nS
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =-15, I <sub>D</sub> =-10A, V <sub>GS</sub> =-10V	-	31.2	-	nC
Gate-Source Charge	Q <sub>gs</sub>		-	3.2	-	nC
Gate-Drain Charge	Q <sub>gd</sub>		-	9.2	-	nC
Drain-sourcediode characteristics						
Diode Forward Voltage	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =-10A	-	-	1.2	V
Diode Forward Current	I <sub>S</sub>		-	-	16	A
Reverse Recovery Time	t <sub>rr</sub>	T <sub>J</sub> = 25°C, I <sub>F</sub> =- 10A	-	24	-	nS
Reverse Recovery Charge	Q <sub>rr</sub>	di/dt = -100A/μs	-	16	-	nC

■ TYPICAL CHARACTERISTICS

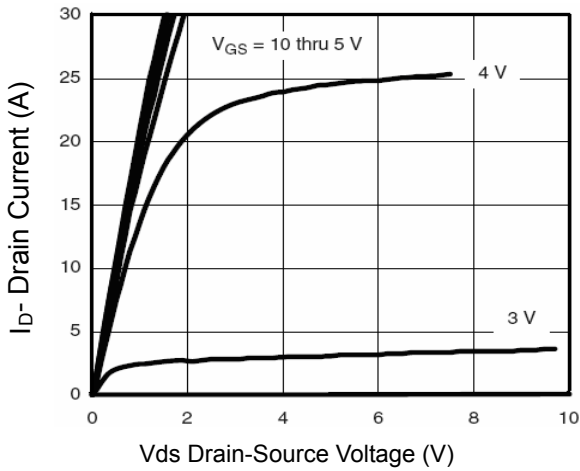


Figure 1 output characteristics

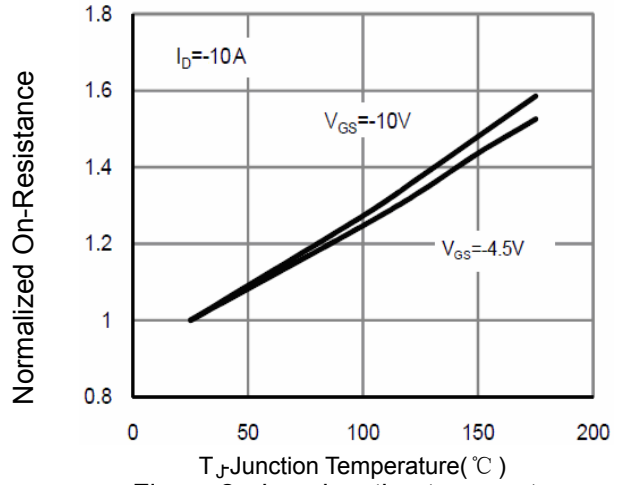


Figure 2  $r_{DS(on)}$ -junction temperature

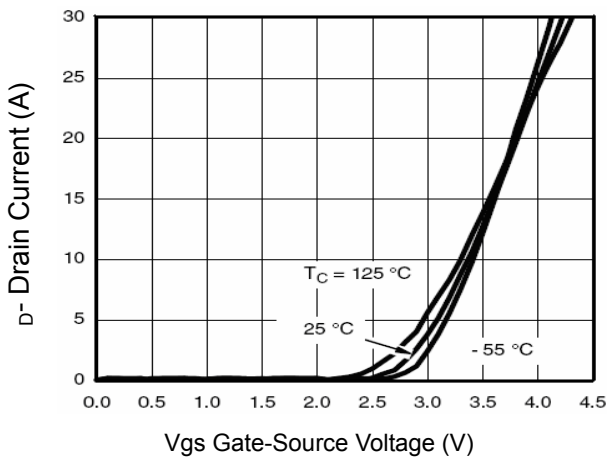


Figure 3 transfer characteristics

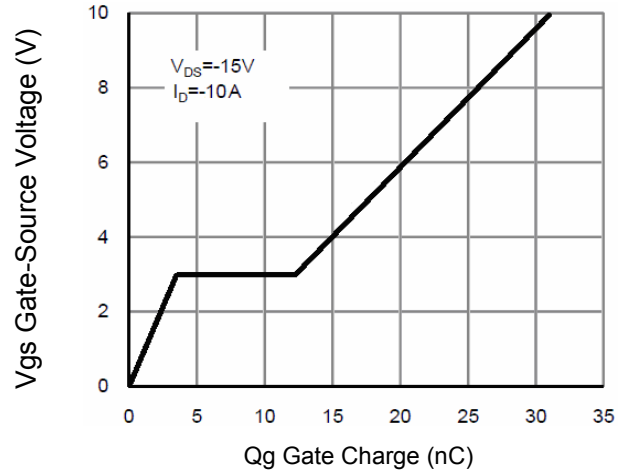


Figure 4 gate charge

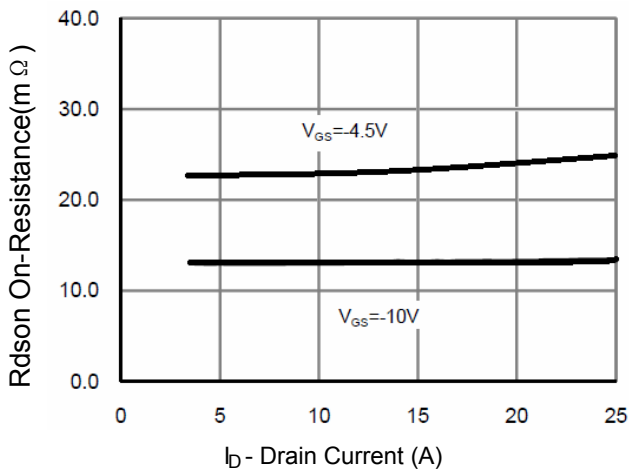


Figure 5  $r_{DS(on)}$ -drain current

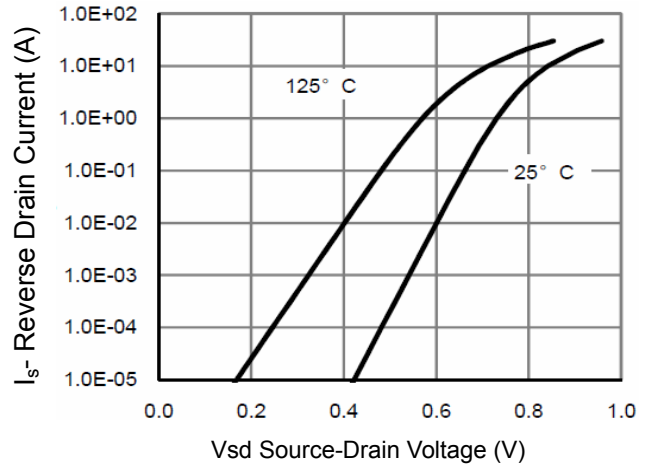


Figure 6 source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

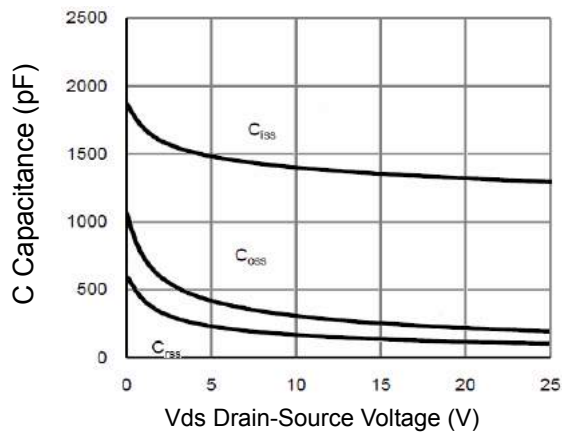


Figure 7 capacitance vs vds

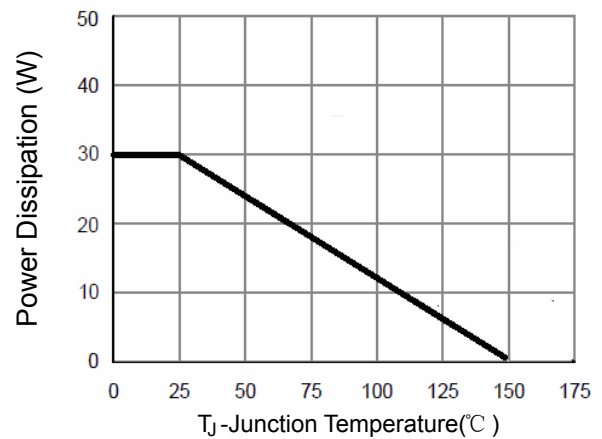


Figure 8 power de-rating

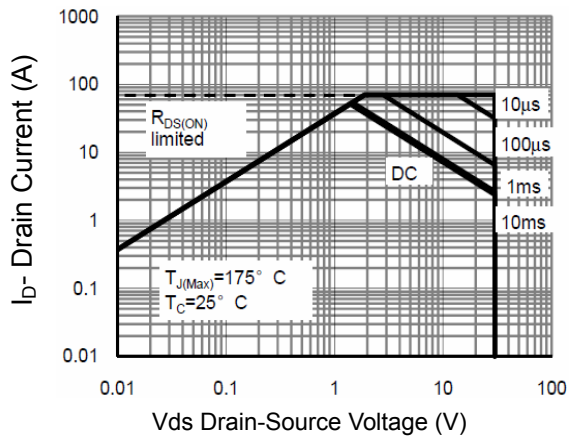


Figure 9 safe operation area

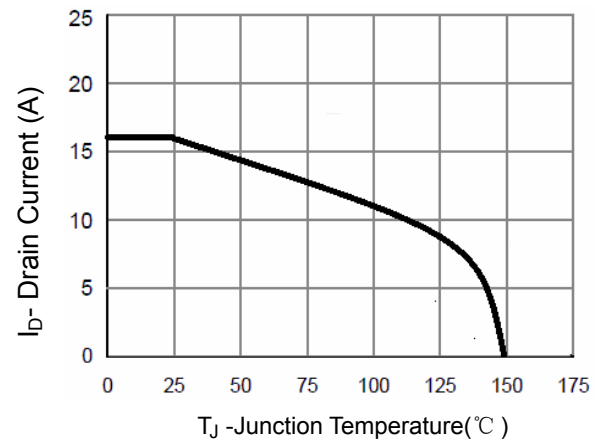


Figure 10 id current derating

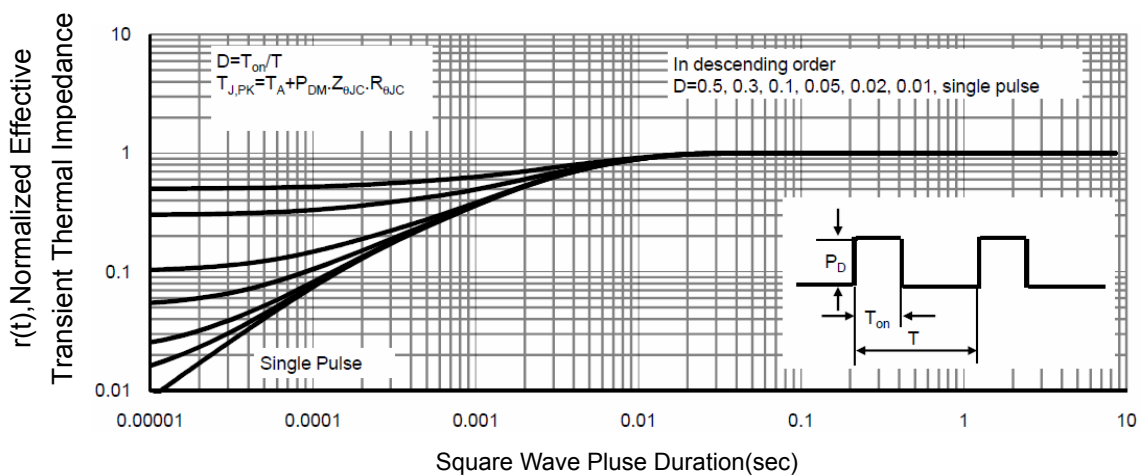
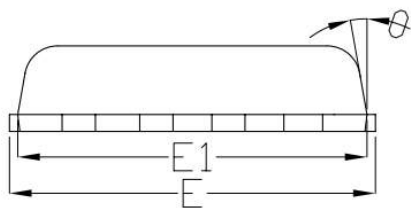
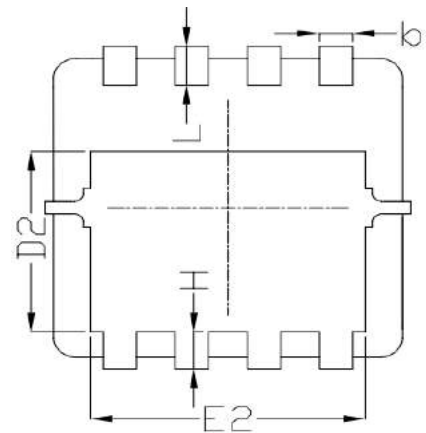
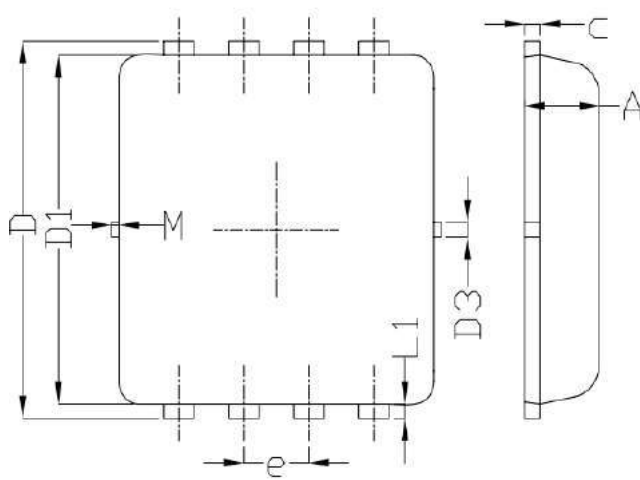
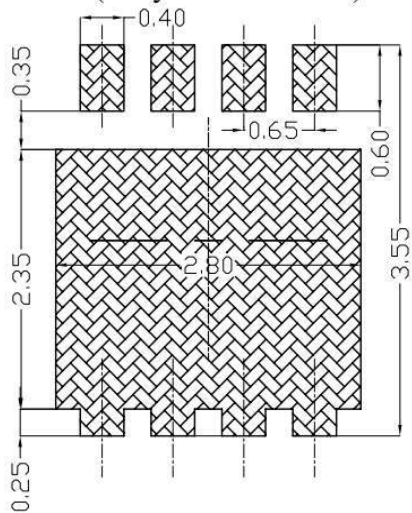


Figure 11 normalized maximum transient thermal impedance

■ PDFN3333-8L Package 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