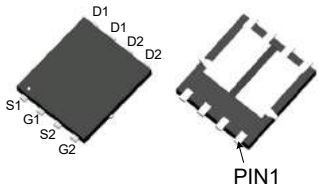
Pin description



■ PRODUCT CHARACTERISTICS

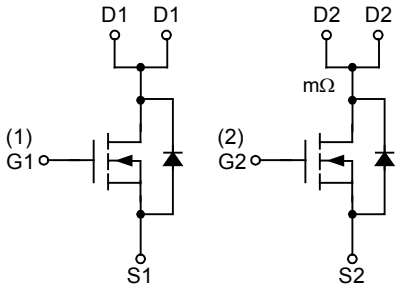
V_{DSS}	30V
$R_{DS(on)}$ Typ(@V_{GS}=4.5V)	19mΩ
$R_{DS(on)}$ Typ(@V_{GS}=10V)	13mΩ
I_D	8A

■ 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



N+N MOSFET

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT3920J	PDFN3X3	5000pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS(T_C=25 ,unless otherwise specified)

Parameter		Symbol	Value	Unit
Drain-source voltage		V_{DSS}	30	V
Gate-source voltage		V_{GSS}	±12	V
Drain current	T_C=25℃	I_D	8	A
	T_C=100℃	I_D	5	A
Pulsed drain currentcurrent		I_{DM}	32	A
Avalanche energy single pulsed		E_{AS}	16	mJ
Power dissipation		P_D	1.8	W
Junction temperature		T_J	+150	℃
Storage temperature		T_{STG}	-55~+150	℃

■ 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_{DS}=250μA	30	-	-	V
Drain-source leakage current	I_{DSS}	V_{DS}=30V,V_{GS}=0V	-	-	1	μA
Gate-source leakage current	I_{GSS}	V_{GS}= ±12V,V_{DS}=0V	-	-	100	nA
On characteristics						
Gate threshold voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_{DS}=250μA	1	-	2.5	V
On-state characteristics	$R_{DS(ON)}$	V_{GS}=10V,I_D=4A	-	13	20	mΩ
		V_{GS}=4.5V,I_D=4A	-	19	29	mΩ
Forward transconductance	g_{FS}	V_{DS}=10V,I_D=4A	10	-	-	S
Dynamic characteristics						
Input capacitance	C_{iss}	V_{GS}=0V,V_{DS}=15V f=1MHz	-	785	-	pF
Out capacitance	C_{oss}		-	65	-	pF
Reverse transfer capacitance	C_{rss}		-	54	-	pF
Switching characteristics						
Total gate charge	Q_g	V_{GS}=0 to 4.5V V_{DS}=15V, I_D=3A	-	19.4	-	nC
Gate-source charge	Q_{gs}		-	2.5	-	nC
Gate-drain charge	Q_{gd}		-	5	-	nC
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V,I_D=3A R_G=3Ω,V_{GS}=10V	-	4	-	nS
Turn-on rise time	t_r		-	11	-	nS
Turn-off delay time	$t_{d(off)}$		-	24	-	nS
Turn-off fall time	t_f		-	2	-	nS
Source-drain diode ratings and characteristics						
Continuous diode forward current	I_{SD}		-	-	8	A
Diode forward current	V_{SD}	V_{GS}=0V,I_{SD}=8A	-	-	1.2	V
Reverse recovery time	t_{rr}	I_F =3A di/dt=100A/ us	-	8.4	-	nS
Reverse recovery charge	Q_{rr}		-	3.3	-	nC

■TYPICAL CHARACTERISTICS

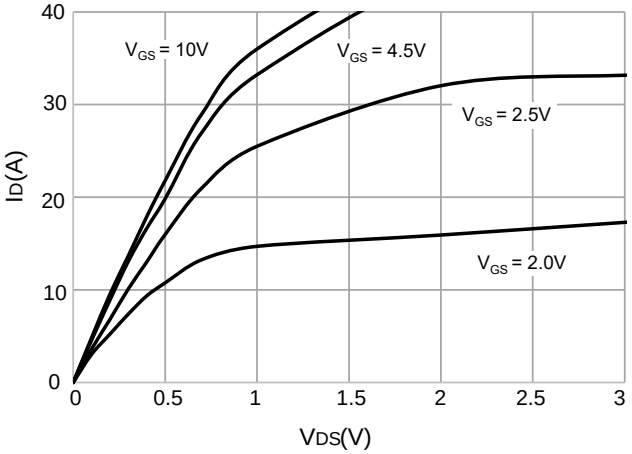


Fig.1 Output characteristice

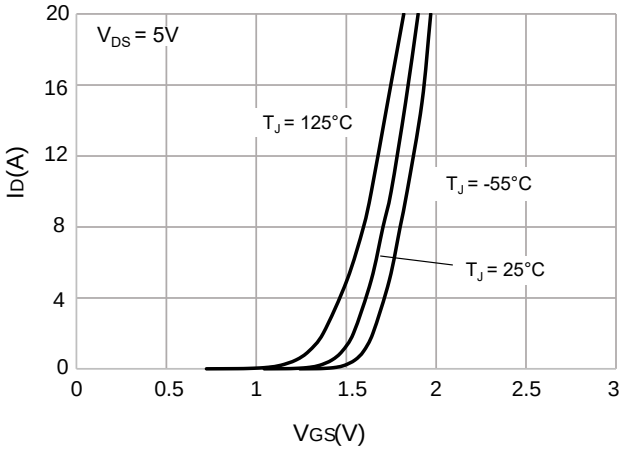


Fig.2 Transfer charactreistics

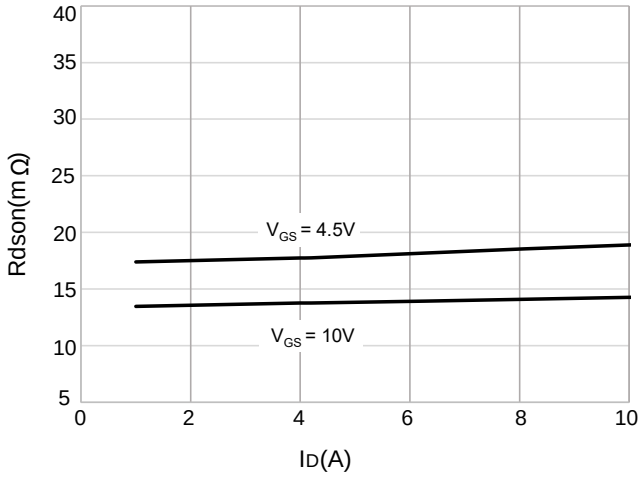


Fig.3 On-resistance vs.drain current

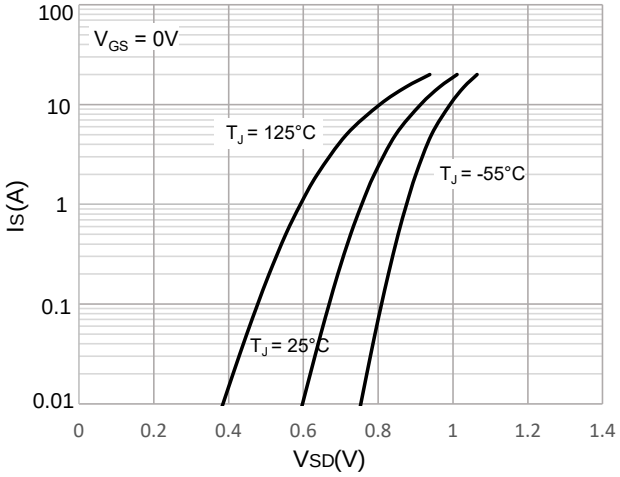


Fig.4 Body diode characteristics

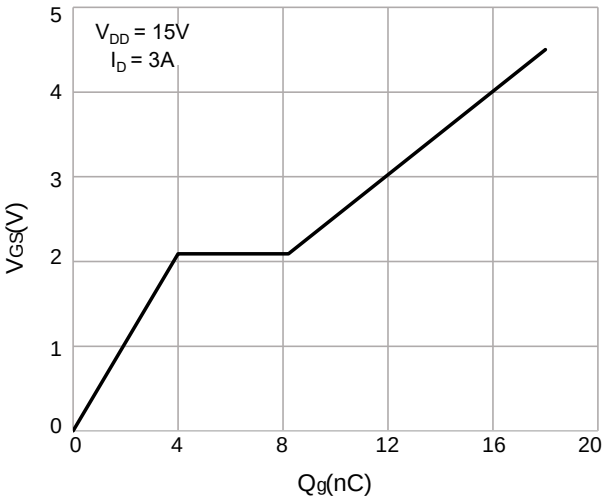


Fig.5 Gate charge characteristics

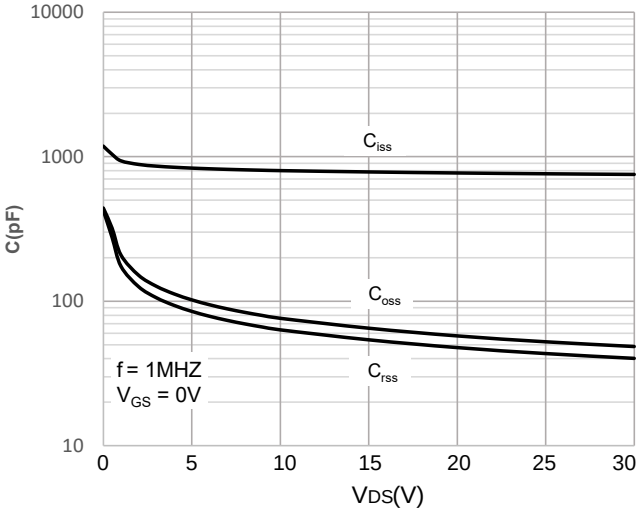


Fig.6 Capacitance characteristics

■TYPICAL CHARACTERISTICS

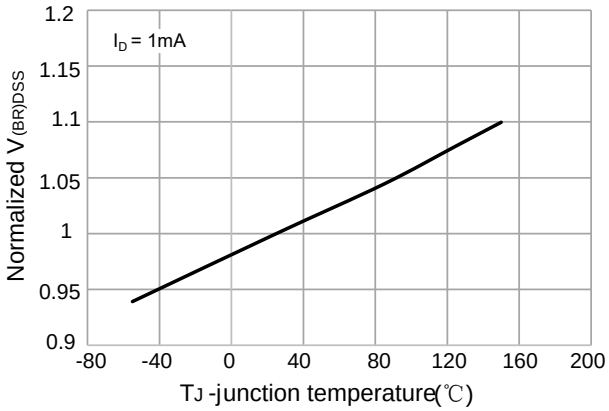


Fig.7 Normalized berkdown voltage vs junction temperature

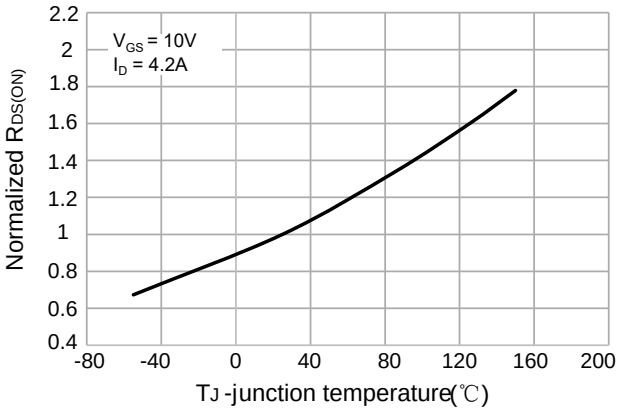


Fig.8 Normalized on resistance vs. junction temperature

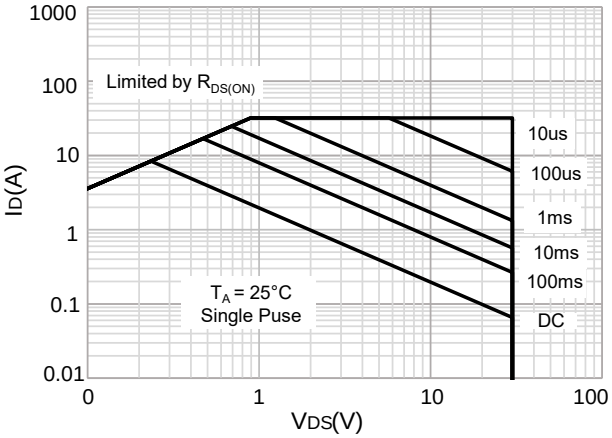


Fig.9 Maximum safe operating area

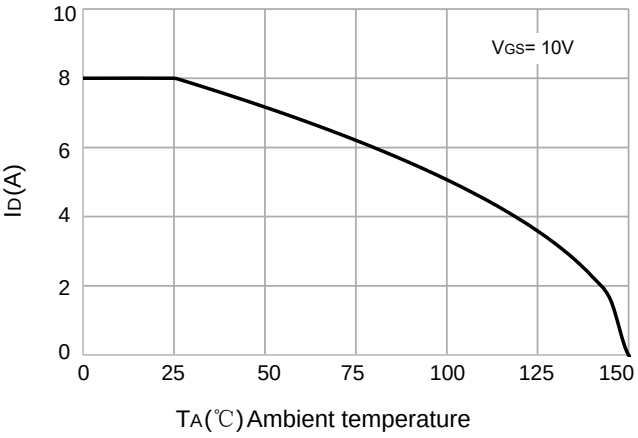


Fig.10 Maximum continuous drain current vs. ambient temperature

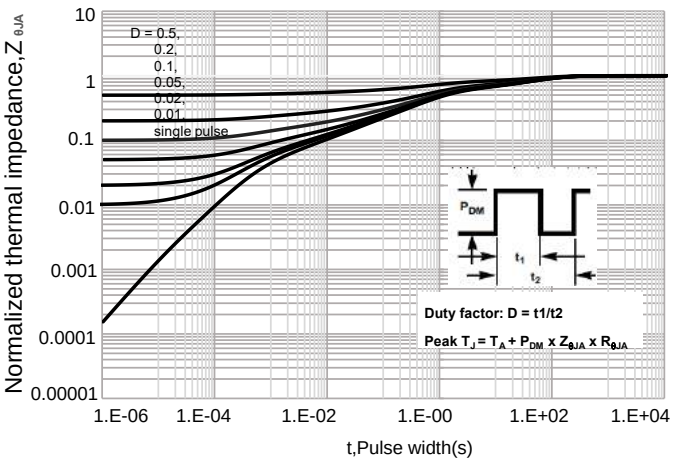


Fig.11 Normalized maximum transient thermal impedance

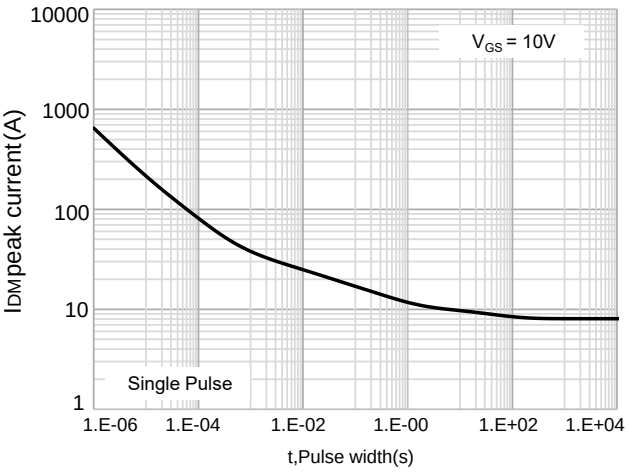
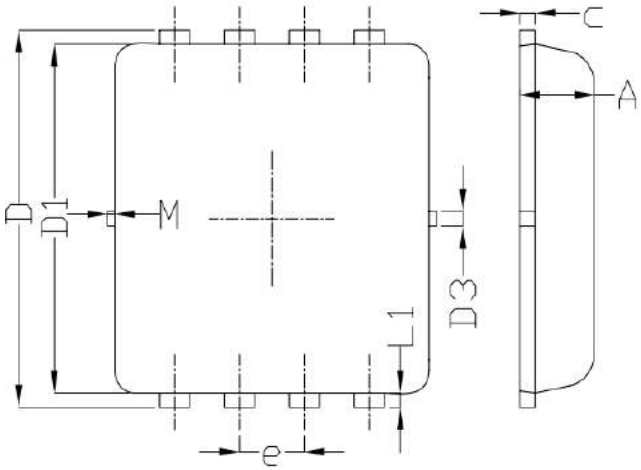
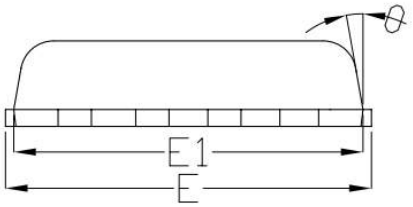
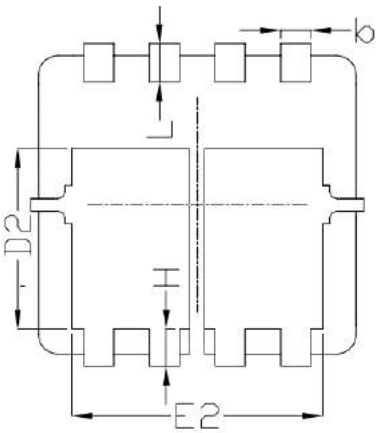


Fig.12 Peak current capacity

■ 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			

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