

PRODUCT CHARACTERISTICS

V_{DSS}	20V
$R_{DS(on)}$ Typ(@ $V_{GS}=4.5V$)	8m Ω
$R_{DS(on)}$ Typ(@ $V_{GS}=2.5V$)	11m Ω
I_D	12A

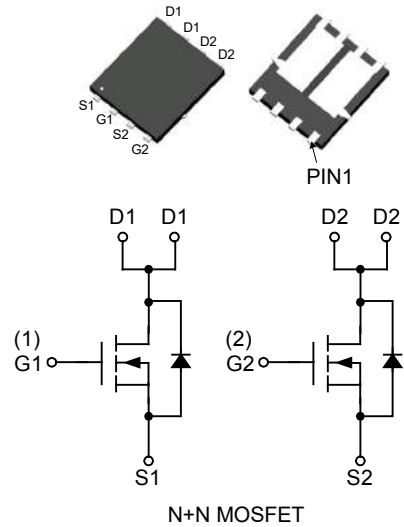
APPLICATIONS

DC/DC converter
Ideal for high-frequency switching and synchronous rectification

FEATURES

Very low on-resistance $R_{DS(on)}$
Pb-free lead plating

Pin description



N+N MOSFET

ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	MOT2914J	PDFN3X3	5000pieces/Reel

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

Parameter	Symbol	Value	Unit	
Drain-source voltage	V_{DSS}	30	V	
Gate-source voltage	V_{GSS}	± 12	V	
Drain current	$T_C=25^\circ C$	I_D	12	A
	$T_C=100^\circ C$	I_D	7	A
Pulsed drain current	I_{DM}	48	A	
Power dissipation	P_D	1.5	W	
Junction temperature	T_J	+150	$^\circ C$	
Storage temperature	T_{STG}	-55~+150	$^\circ C$	

■ ELECTRICAL CHARACTERISTICS ($T_C=25$, unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	BV_{DSS}	$V_{GS}=0V, I_{DS}=250\mu A$	20	-	-	V
Drain-source leakage current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-source leakage current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	100	nA
On characteristics						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_{DS}=250\mu A$	1	-	2.5	V
On-state characteristics	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=4A$	-	8	14	m Ω
		$V_{GS}=2.5V, I_D=4A$	-	11	21	m Ω
Forward transconductance	g_{FS}	$V_{DS}=10V, I_D=4A$	10	-	-	S
Dynamic characteristics						
Input capacitance	C_{iss}	$V_{GS}=0V, V_{DS}=10V$ $f=1MHz$	-	1255	-	pF
Out capacitance	C_{oss}		-	220	-	pF
Reverse transfer capacitance	C_{rss}		-	168	-	pF
Switching characteristics						
Total gate charge	Q_g	$V_{GS}=10V$ $V_{DS}=10V, I_D=10A$	-	42	-	nC
Gate-source charge	Q_{gs}		-	10.8	-	nC
Gate-drain charge	Q_{gd}		-	9.2	-	nC
Turn-on delay time	$t_{d(on)}$	$V_{DD}=10V, I_D=5A$ $R_G=3\Omega, V_{GS}=10V$	-	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}		-	-	12	A
Diode forward current	V_{SD}	$V_{GS}=0V, I_{SD}=12A$	-	-	1.2	V

■ TYPICAL CHARACTERISTICS

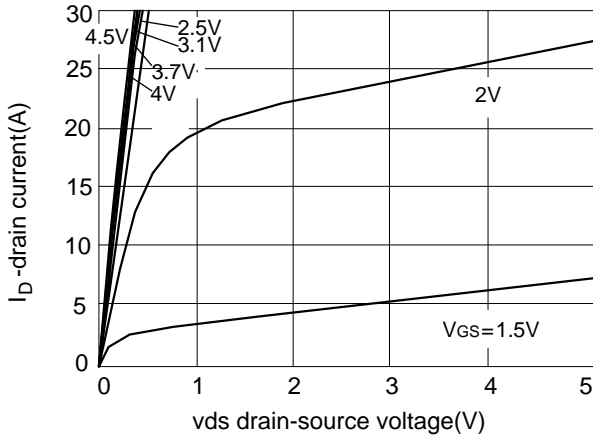


Fig.1 output characteristics

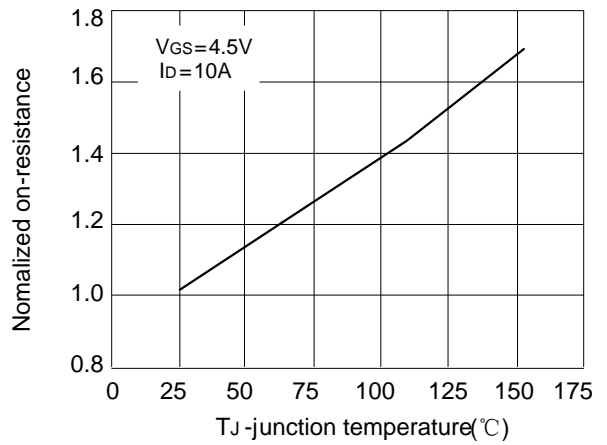


Fig.2 rdson-junction temperature

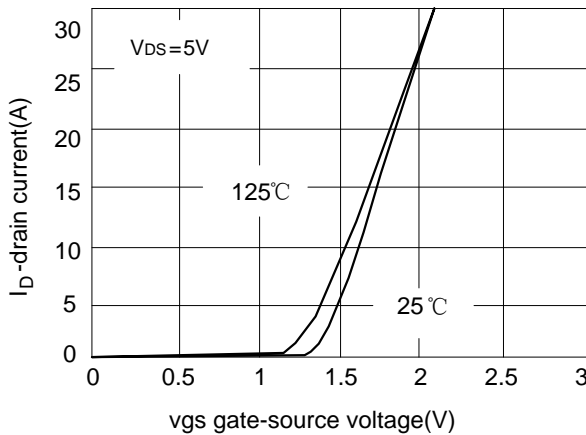


Fig.3 transfer characteristics

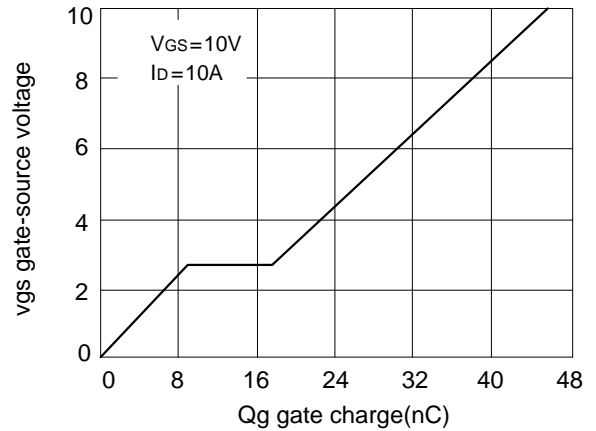


Fig.4 gate charge

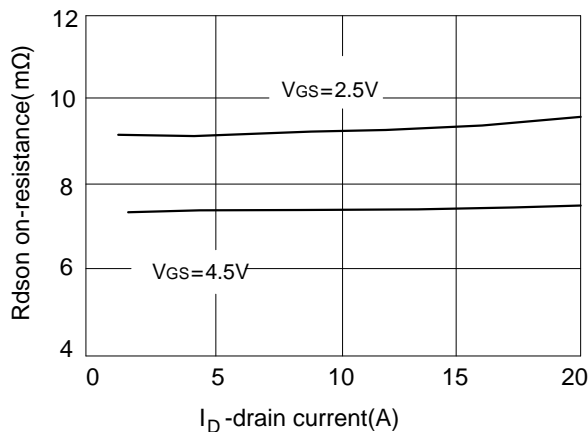


Fig.5 rdson-drain current

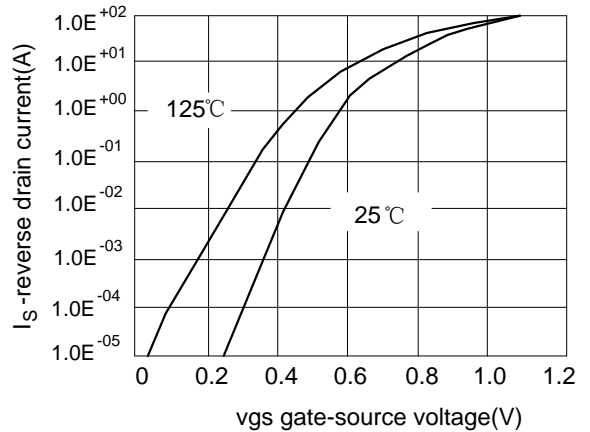


Fig.6 source-drain diode forward

■ TYPICAL CHARACTERISTICS(Cont.)

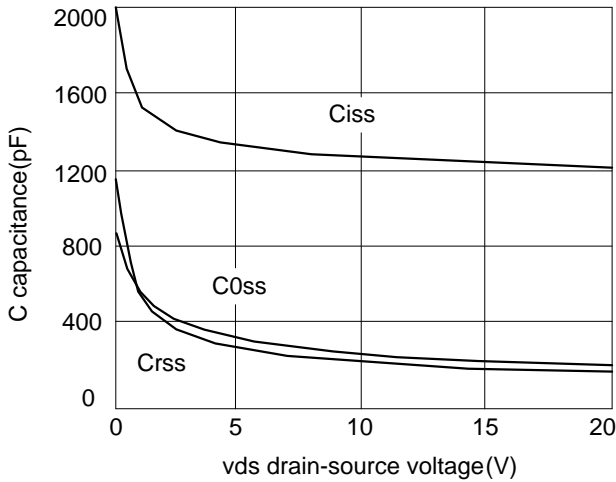


Fig.7 capacitance vs vds

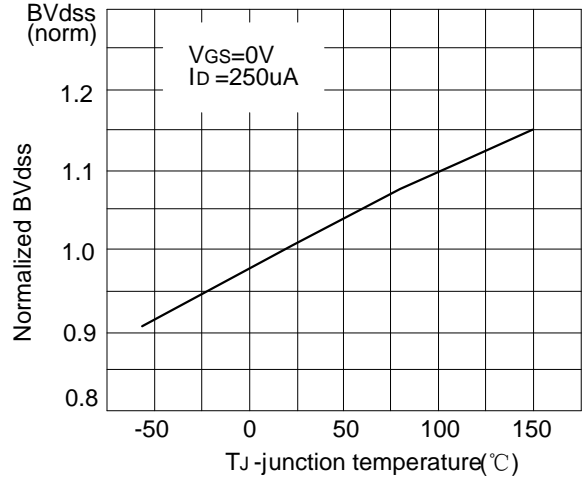


Fig.8 BVdss vs junction temperature

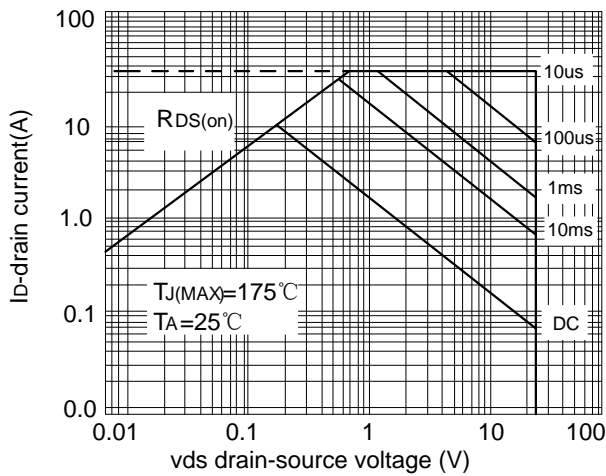


Fig.9 safe operation area

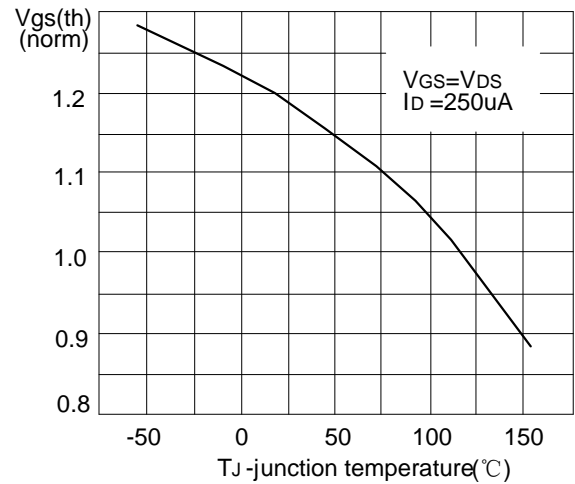


Fig.10 VGS(th) vs junction temperature

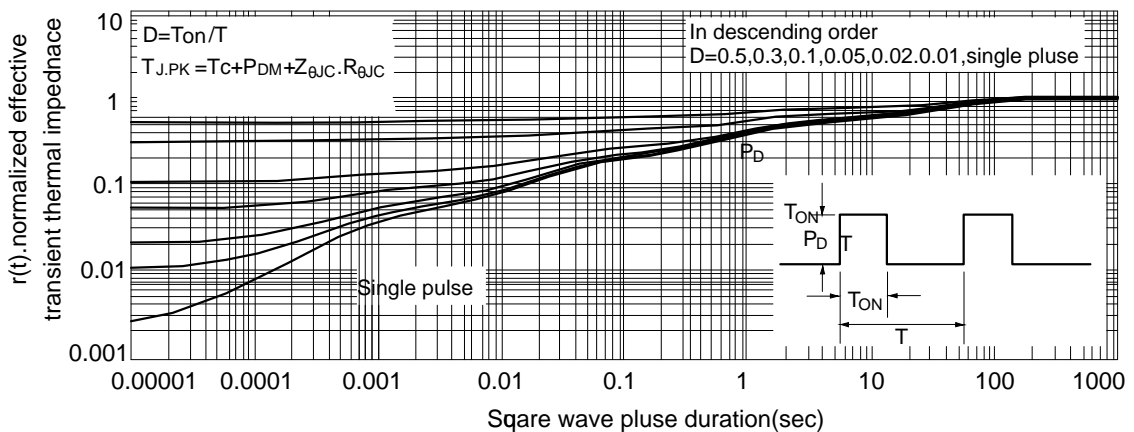


Fig.11 normalized maximum transient thermal impedance

■ PDFN3X3-8L Package Mechanical Data

