

PRODUCT CHARACTERISTICS

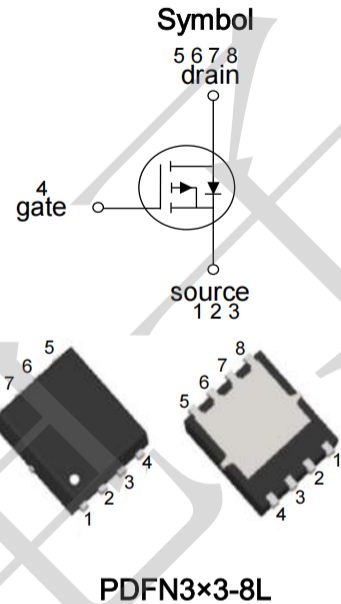
V_{DS}	-30V
$R_{DS(on)}$ Typ(@ $V_{GS}=-4.5V$)	14m Ω
$R_{DS(on)}$ Typ(@ $V_{GS}=-10V$)	9.5m Ω
I_D	-20A

APPLICATIONS

PWM applications
Load switch
Power management

FEATURES

High power and current handing capability
Led free product is acquired
Surface mount package



ORDER INFORMATION

Order codes		Package	Packing
Halogen-free	Halogen		
N/A	TPRU30L30M3	PDFN3X3-8L	5000pieces/Reel

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

Parameter	Symbol	Value	Unit
Drain-source voltage	V_{DS}	-30	V
Gate-source voltage	V_{GS}	± 20	V
Drain current	I_D	-20	A
Pulsed drain current	I_{DM}	-80	A
Power dissipation	P_D	35	W
Junction temperature	T_J	+150	$^{\circ}C$
Storage temperature	T_{STG}	-55~+150	$^{\circ}C$

ELECTRICAL CHARACTERISTICS(TC=25℃,unless otherwise specified)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off characteristics						
Drain-source breakdown voltage	BV _{DSS}	V _{GS} =0V,I _{DS} =-250uA	-30	-	-	V
Drain-source leakage current	I _{DSS}	V _{DS} =-20V,V _{GS} =0V	-	-	-1	μA
Gate-source leakage current	I _{GSS}	V _{GS} = ±20V,V _{DS} =0V	-	-	100	nA
On characteristics						
Gate threshold voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _{DS} =-250uA	-1.2	-	-2.5	V
On-state characteristics	R _{DS(ON)}	V _{GS} =-4.5V,I _D =-15A	-	14	18	mΩ
		V _{GS} =-10V,I _D =-15A	-	9.5	12	mΩ
Forward transconductance	g _{FS}	V _{DS} =-5V,I _D =-15A	10	-	-	S
Dynamic characteristics						
Input capacitance	C _{iss}	V _{GS} =0V,V _{DS} =-25V f=1MHz	-	2130	-	pF
Out capacitance	C _{oss}		-	302	-	pF
Reverse transfer capacitance	C _{rss}		-	227	-	pF
Switching characteristics						
Total gate charge	Q _g	V _{GS} =-10V,V _{DS} =-15V I _D =-20A	-	10	-	nC
Gate-source charge	Q _{gs}		-	2	-	nC
Gate-drain charge	Q _{gd}		-	2.7	-	nC
Turn-on delay time	t _{d(on)}	V _{DD} =-15V,I _D =-15A R _G =1Ω V _{GS} =-10V	-	12	-	nS
Turn-on rise time	t _r		-	10	-	nS
Turn-off delay time	t _{d(off)}		-	25	-	nS
Turn-off fall time	t _f		-	13	-	nS
Source-drain diode ratings and characteristics						
Continuous diode forward current	I _{SD}		-	-	-20	A
Diode forward current	V _{SD}	V _{GS} =0V,I _{SD} =-20A	-	-	-1.2	V

TYPICAL CHARACTERISTICS

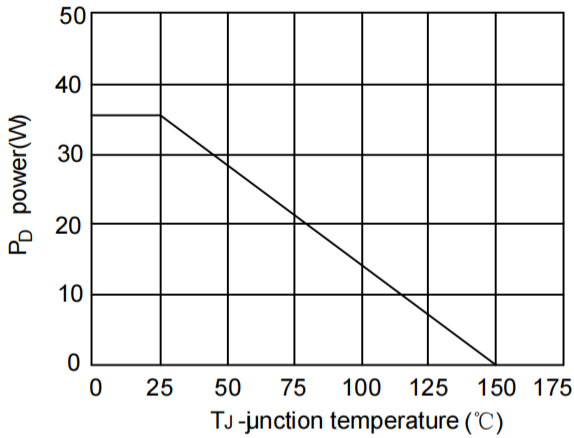


Fig.1 power dissipation

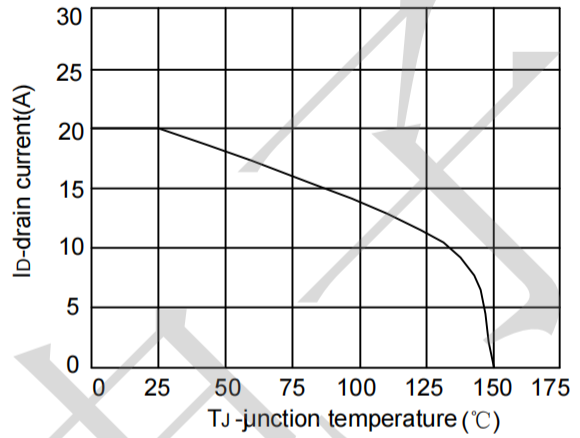


Fig.2 current vs junction temperature

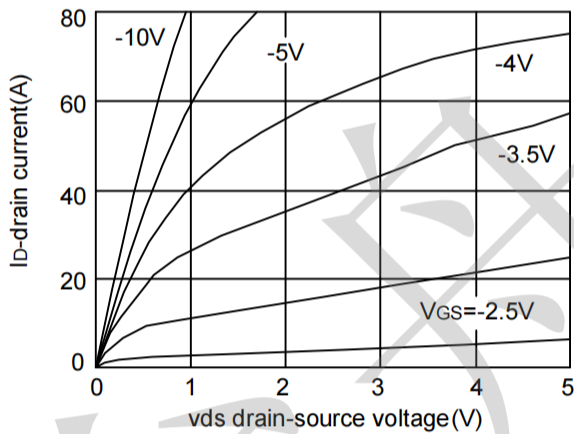


Fig.3 output characteristics

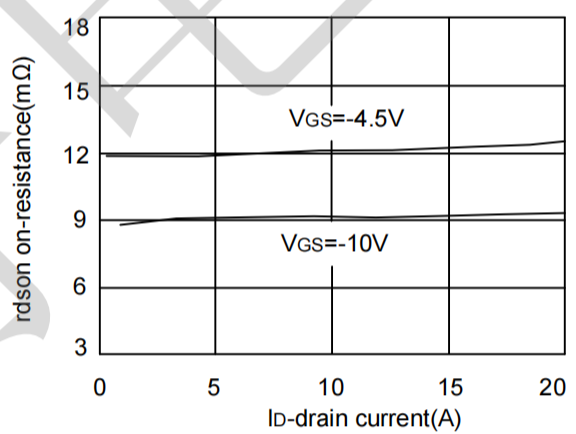


Fig.4 drain-source on-resistance

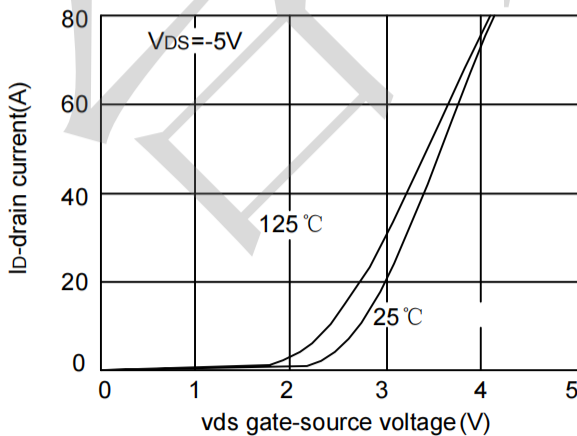


Fig.5 transfer characteristics

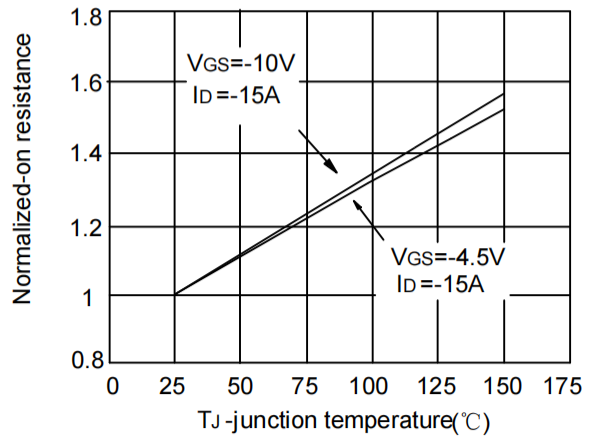


Fig.6 drain-source on-resistance

TYPICAL CHARACTERISTICS(Cont.)

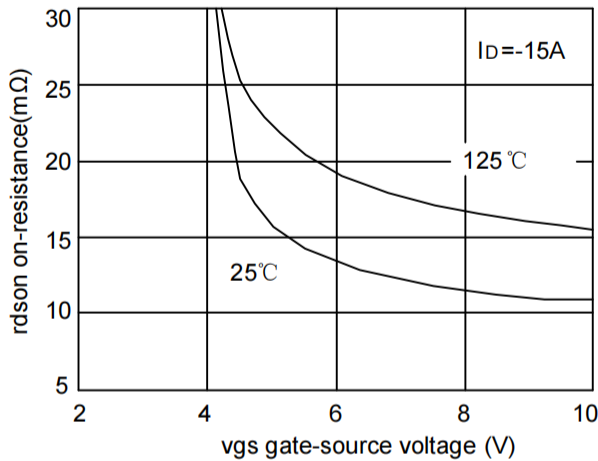


Fig.7 $r_{DS(on)}$ vs v_{GS}

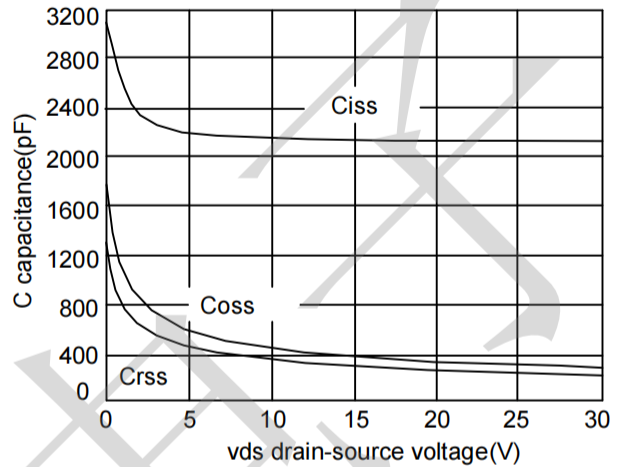


Fig.8 capacitance vs v_{DS}

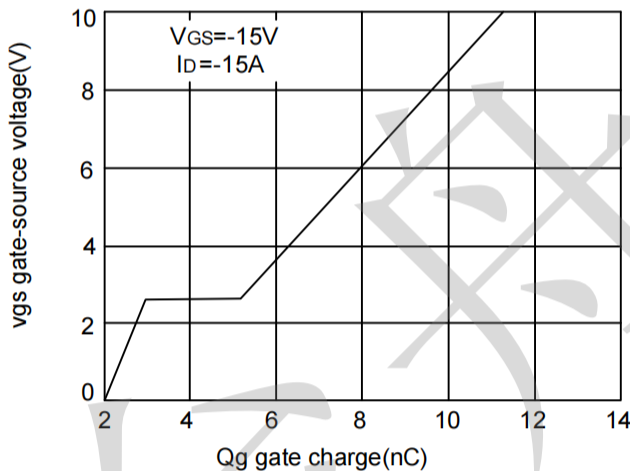


Fig.9 gate charge

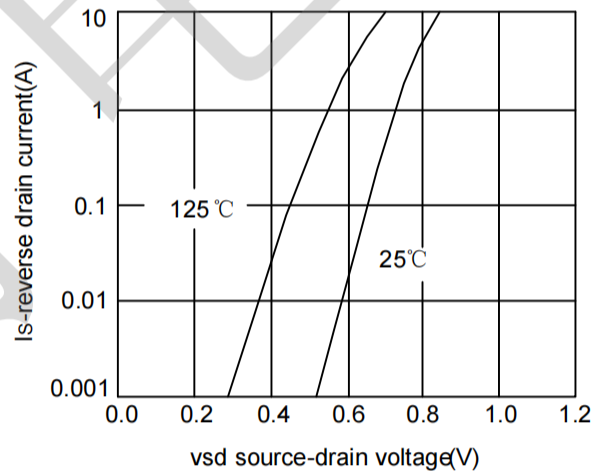


Fig.10 source-drain diode forward

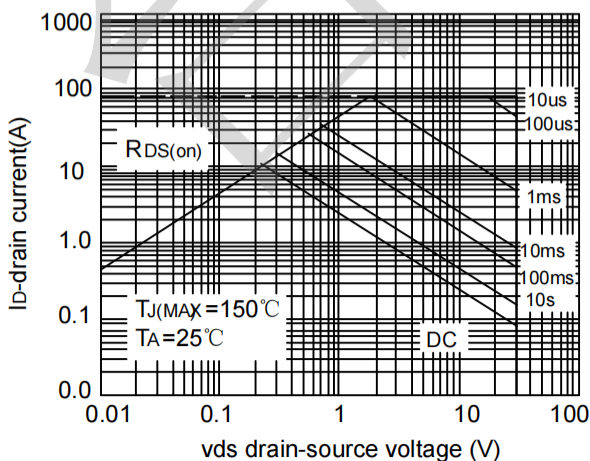


Fig.11 safe operation area

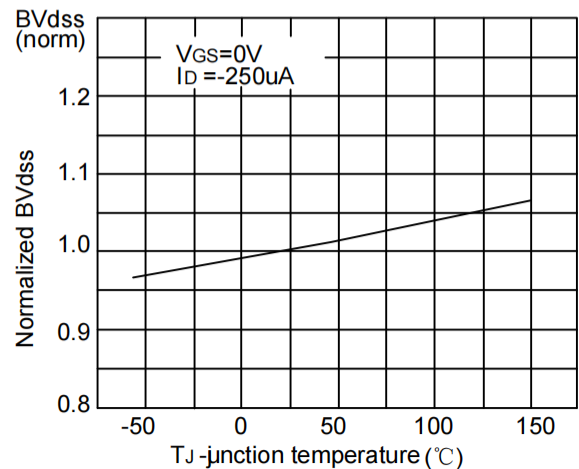
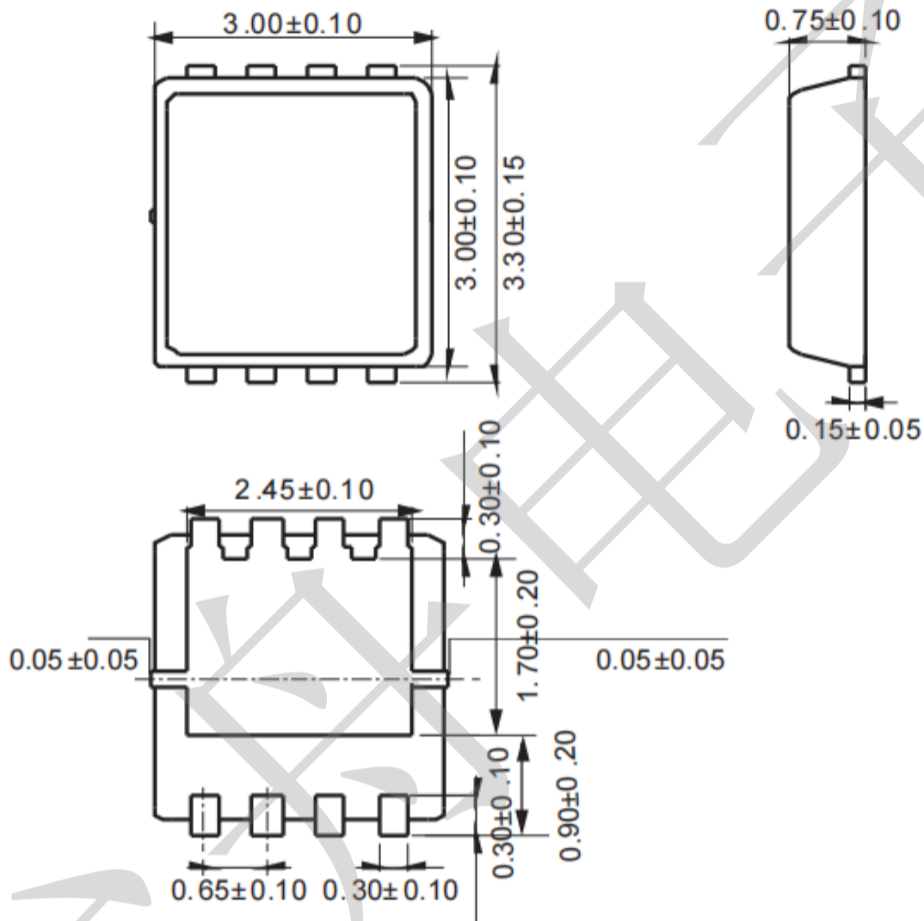


Fig.12 BV_{DSS} vs junction temperature

Package Outline Dimensions (unit:mm)

PDFN3×3-8L



Mounting Pad Layout (unit: mm)

