TECH PUBLIC
台舟电子

IRF6218STRLPBF-TP

P-Channel Enhancement Power MOSFET

WWW.TECHPUBLIC.COM

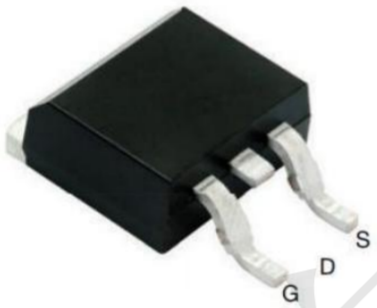
Product Summary

- V_{DS} -150 V
- I_{DS} -30A
- $R_{DS(ON)}$ (at V_{GS}= -10V) <135mΩ (Typ)

Application

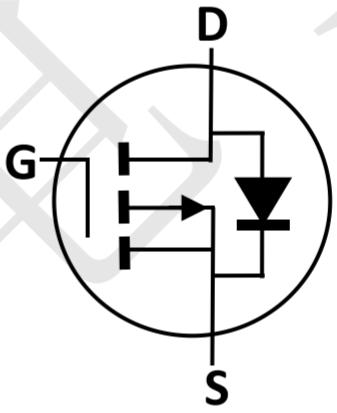
- Reverse Battery protection
- Load switch
- Power management
- PWM Application

Package and Pin Configuration



TO-263

Circuit diagram



Equivalent Circuit

Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	-150	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25℃	I_D	-30	A
	T_C=100℃		-24	A
Pulsed Drain Current (note1)		I_{DM}	-120	A
Maximum Power Dissipation T_C=25℃		P_D	120	W
Operating Junction Temperature Range		T_J	-55 to +150	℃
Storage Temperature Range		T_{stg}	-55 to +150	℃

Thermal Characteristic

PARAMETER		Symbol	Value	Unit
Junction-to-Ambient Thermal Resistance	PCB Mount (note2)	$R_{\theta JA}$	62	°C/W
Thermal Resistance Junction-Case		$R_{\theta JC}$	1.06	

notes 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

2 . When mounted on 2" square PCB (FR4 material).

Electrical Characteristics (T_A=25℃unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250μA	BV_{DSS}	-150	--	--	V
Gate-Source Threshold Voltage	V_{DS}=V_{GS} , I_D= -250μA	$V_{GS(th)}$	-2.0	-3.0	-4.0	V
Gate-Source Leakage	V_{DS}=0V, V_{GS}= ±20V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS}= -120V, V_{GS}=0V	I_{DSS}	--	-0.1	-1	μA
	V_{DS}= -120V, T_J=125°C		--	-10	-50	μA
Drain-Source On-State Resistance (Note 1)	V_{GS}= -10V, I_D= -10A	R_{DS}(on)	--	135	150	mΩ
	V_{GS}= -6.5V, I_D= -8A		--	140	155	
Forward Transconductance (Note 2)	V_{DS}= -10V, I_D= -10A	g_{fs}	--	16	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V_{DS} = -75V, I_D = -3A, V_{GS} = -10V	Q_g	--	56	--	nC
Gate-Source Charge (Note 3)		Q_{gs}	--	11	--	
Gate-Drain Charge (Note 3)		Q_{gd}	--	8.5	--	
Input Capacitance	V_{DS} = -75V, V_{GS} = 0V, F= 1.0MHz	C_{iss}	--	2900	--	pF
Output Capacitance		C_{oss}	--	480	--	
Reverse Transfer Capacitance		C_{rss}	--	200	--	
Switching						
Turn-On Delay Time (Note 3)	V_{DD} = -75V, I_D= -3A, V_{GS} = -10V, R_{GEN} = 6Ω	$t_{d(on)}$	--	33	--	nS
Rise Time (Note 3)		t_r	--	19	--	
Turn-Off Delay Time (Note 3)		$t_{d(off)}$	--	136	--	
Fall Time (Note 3)		t_f	--	50	--	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V_{GS} = 0V, I_{SD} = -10A	V_{SD}	--	-0.8	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I_S	--	--	-30	A
Pulsed Current (Note 1)		I_{SM}	--	--	-120	A

Notes:

1. Pulse test; pulse width ≤ 300 μS, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

Fig.1 Continuous Drain Current vs. TC

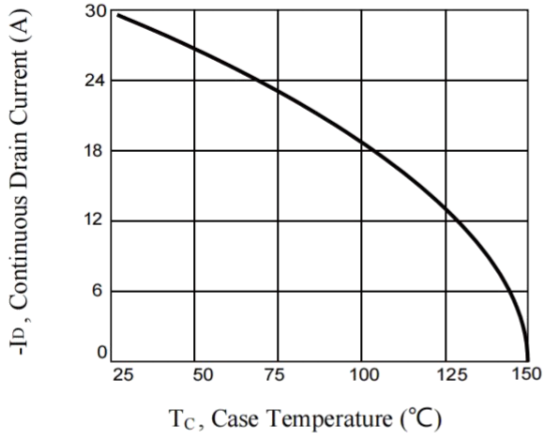


Fig.2 Normalized RDSON vs. TJ

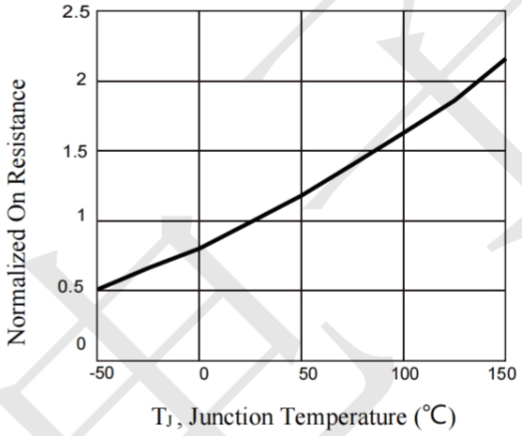


Fig.3 Normalized Vth vs. TJ

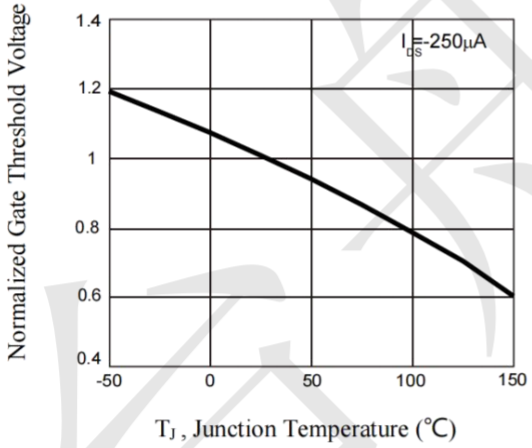


Fig.4 Gate Charge Waveform

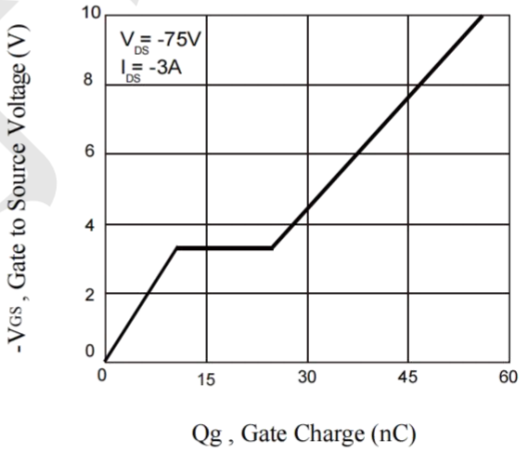


Fig.5 Typical Output Characteristics

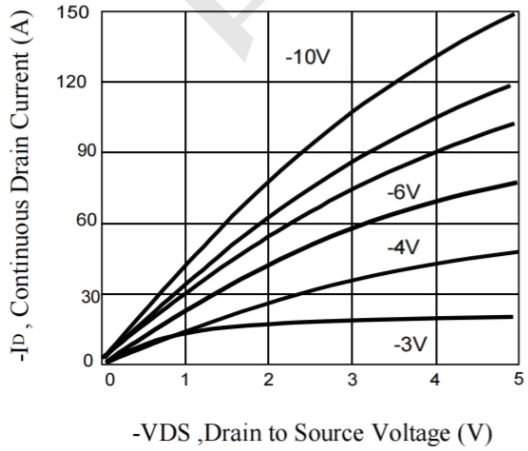
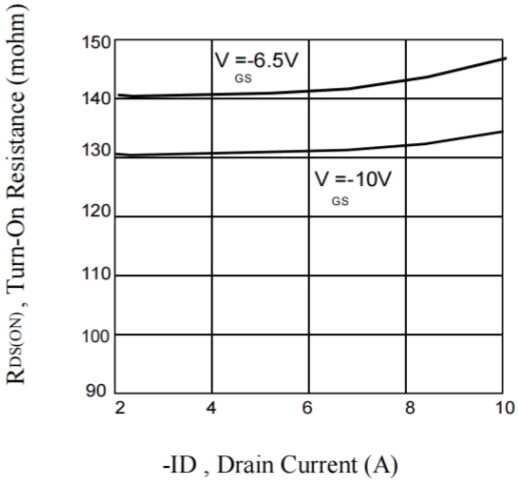
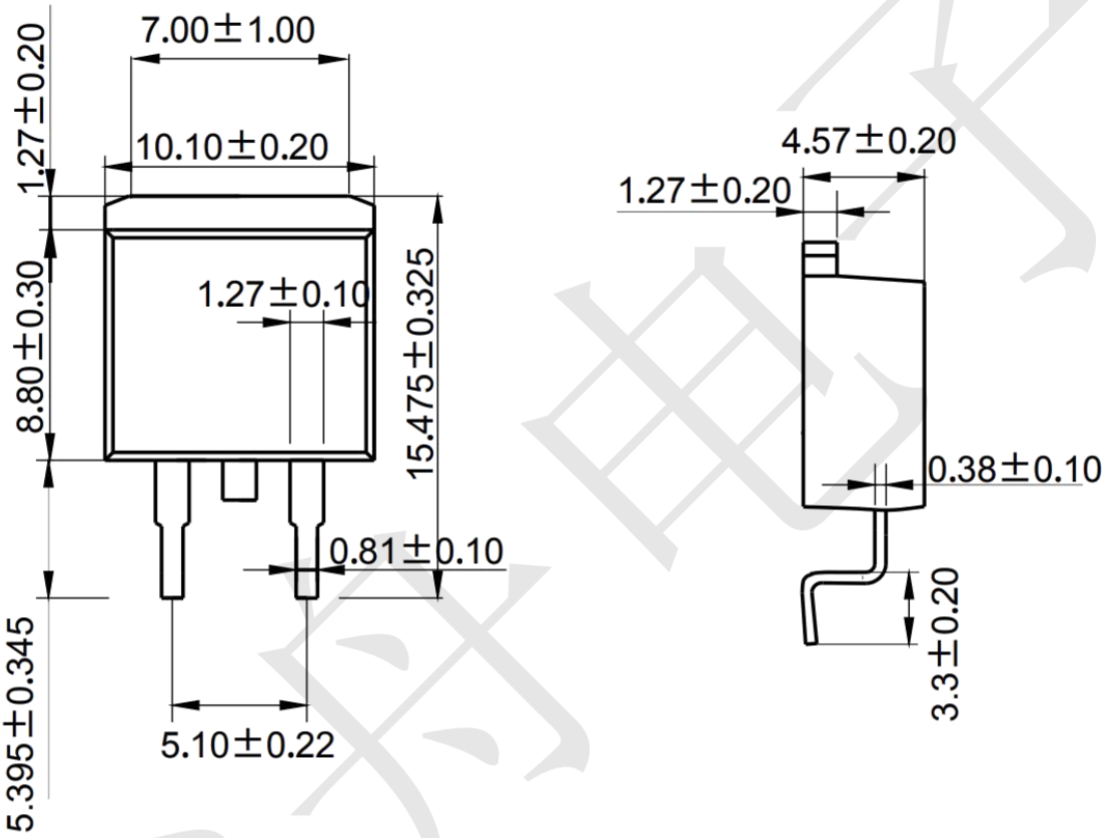


Fig.6 Turn-On Resistance vs. ID



Package Outline Dimensions (unit: mm)

TO-263



Mounting Pad Layout (unit: mm)