FKBB2722

**FETek Technology Corp.**

Single N-Channel MOSFET

Features

★ Advanced Trench MOS Technology
★ ESD Protected
★ Green Device Available

Applications

★ Power Management in Notebook Computer, Portable Equipment.
★ Battery protection switch.

Product Summary

BVDSS	RDSON	ID
20V	2.9mΩ	50A

PRPAK3X3 Pin Configuration
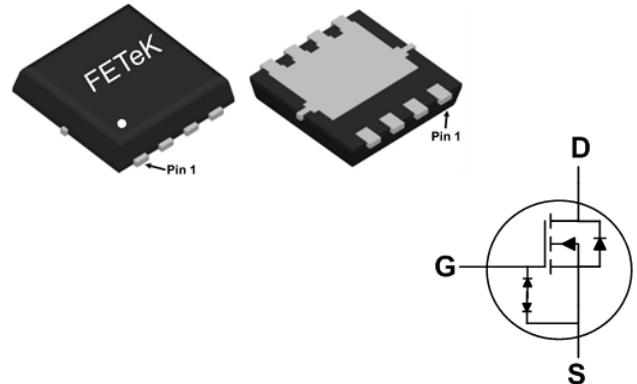
Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-Source Voltage	±12	V
$I_D@T_C=25°C$	Continuous Drain Current[1,5]	50	A
$I_D@T_C=100°C$	Continuous Drain Current[1]	40	A
I_{DM}	Pulsed Drain Current[2]	200	A
$P_D@T_C=25°C$	Total Power Dissipation[3]	35	W
$P_D@T_A=25°C$	Total Power Dissipation[3]	2	W
T_{STG}	Storage Temperature Range	-55 to 150	°C
T_J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{θJA}$	Thermal Resistance Junction-Ambient [1]	---	62	°C/W
$R_{θJC}$	Thermal Resistance Junction-Case [1]	---	3.5	°C/W

Electrical Characteristics (T$_J$=25 ℃, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV$_{DSS}$	Drain-Source Breakdown Voltage	V$_{GS}$=0V , I$_D$=250uA	20	---	---	V
R$_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V$_{GS}$=4.5V , I$_D$=15A	---	2.2	2.9	mΩ
		V$_{GS}$=2.5V , I$_D$=7A	---	2.6	3.5	
		V$_{GS}$=1.8V , I$_D$=2A	---	3.8	5.5	
V$_{GS(th)}$	Gate Threshold Voltage	V$_{GS}$=V$_{DS}$, I$_D$ =250uA	0.4	0.6	1.0	V
I$_{DSS}$	Drain-Source Leakage Current	V$_{DS}$=20V , V$_{GS}$=0V , T$_J$=25℃	---	---	1	uA
		V$_{DS}$=20V , V$_{GS}$=0V , T$_J$=55℃	---	---	5	
I$_{GSS}$	Gate-Source Leakage Current	V$_{GS}$=±12V , V$_{DS}$=0V	---	---	±10	uA
gfs	Forward Transconductance	V$_{DS}$=5V , I$_D$=10A	---	32	---	S
Q$_g$	Total Gate Charge	V$_{DS}$=20V , V$_{GS}$=4.5V , I$_D$=15A	---	58.6	---	nC
Q$_{gs}$	Gate-Source Charge		---	5.8	---	
Q$_{gd}$	Gate-Drain Charge		---	20.6	---	
T$_{d(on)}$	Turn-On Delay Time	V$_{DD}$=10V , V$_{GS}$=10V , R$_G$=3Ω I$_D$=1A	---	22	---	ns
T$_r$	Rise Time		---	26	---	
T$_{d(off)}$	Turn-Off Delay Time		---	169	---	
T$_f$	Fall Time		---	87	---	
C$_{iss}$	Input Capacitance	V$_{DS}$=10V , V$_{GS}$=0V , f=1MHz	---	4239	---	pF
C$_{oss}$	Output Capacitance		---	688	---	
C$_{rss}$	Reverse Transfer Capacitance		---	643	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I$_S$	Continuous Source Current[1,4]	V$_G$=V$_D$=0V , Force Current	---	---	50	A
V$_{SD}$	Diode Forward Voltage[2]	V$_{GS}$=0V , I$_S$=1A , T$_J$=25℃	---	---	1.2	V

Note :
1.The data tested by surface mounted on a 1 inch[2] FR-4 board with 2OZ copper(t≤10sec.).
2.The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3.The power dissipation is limited by 150℃ junction temperature
4.The data is theoretically the same as I$_D$ and I$_{DM}$, in real applications , should be limited by total power dissipation.
5. The maximum current rating is package limited.

Typical Characteristics
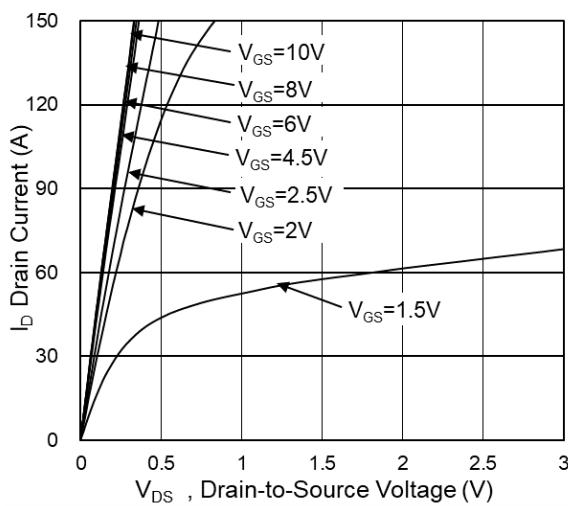
Fig.1 Typical Output Characteristics
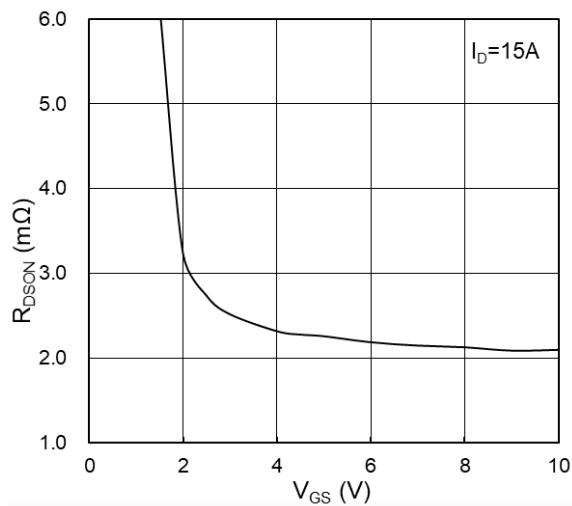
Fig.2 On-Resistance vs G-S Voltage
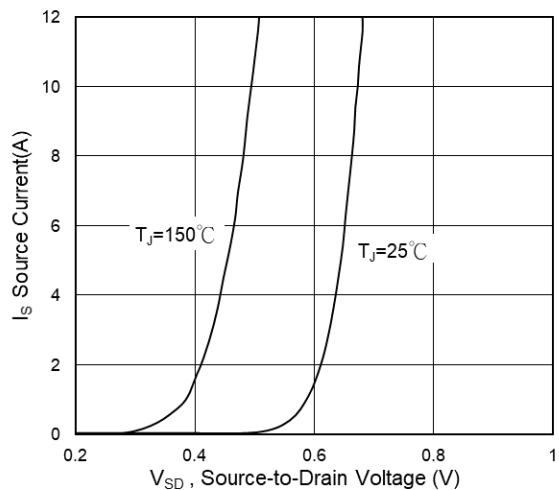
**Fig.3 Source Drain Forward Characteristics**
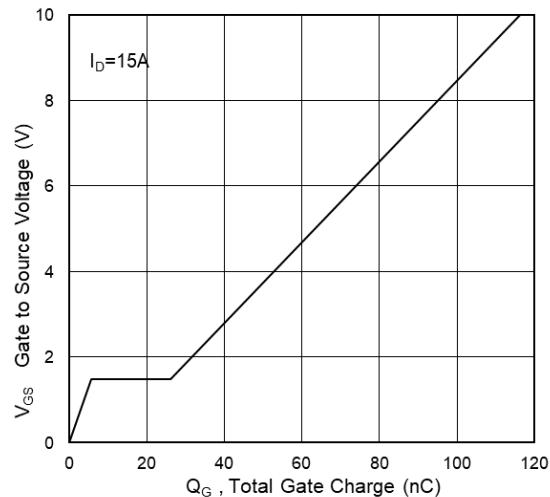
Fig.4 Gate-Charge Characteristics
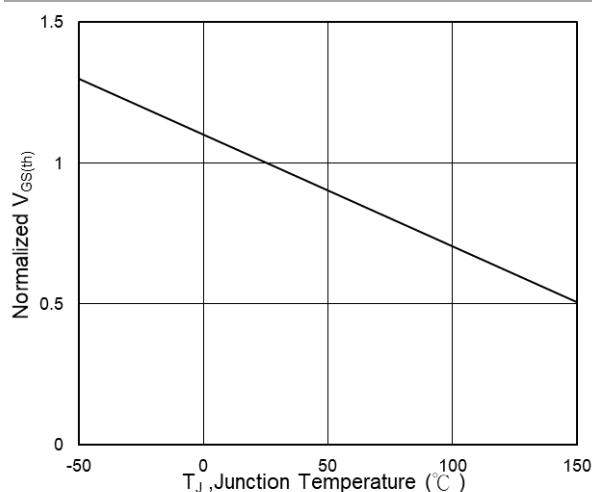
Fig.5 Normalized $V_{GS(th)}$ vs T_J
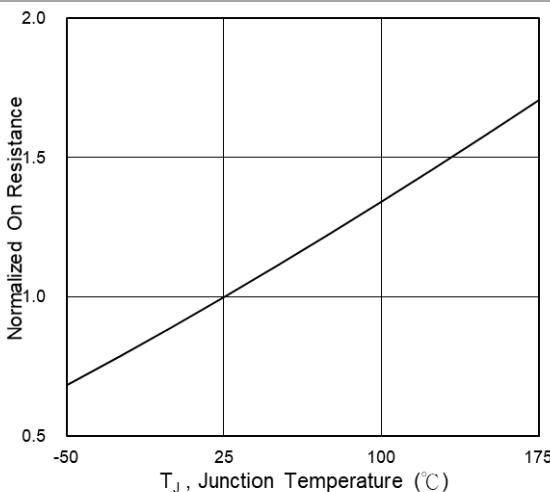
Fig.6 Normalized R_{DSON} vs T_J
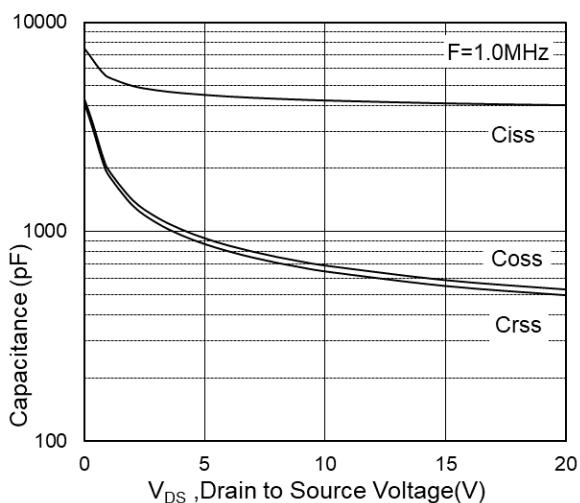
Fig.7 Capacitance
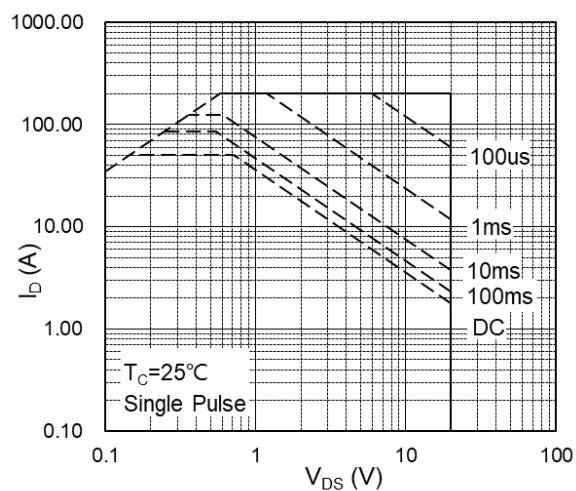
Fig.8 Safe Operating Area
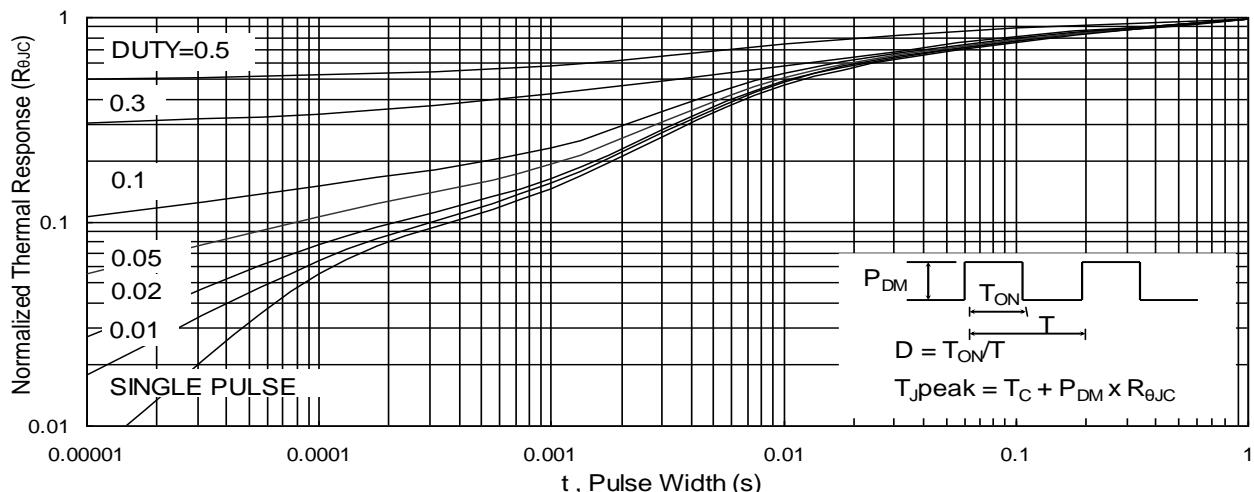
Fig.9 Normalized Maximum Transient Thermal Impedance

$$D = T_{ON}/T$$

$$T_J peak = T_C + P_{DM} \times R_{\theta JC}$$
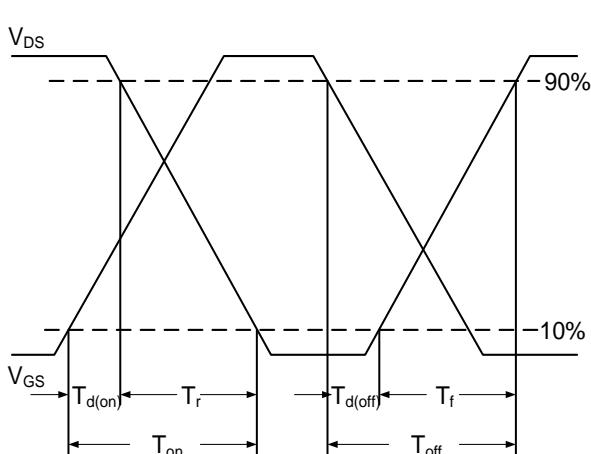
Fig.10 Switching Time Waveform
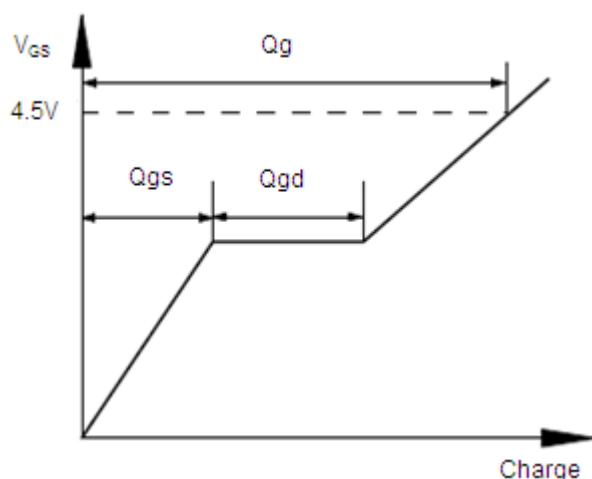
Fig.11 Gate Charge Waveform

Marking Instruction

Part Number

Date Code

Assembly Code

Sequence(01~99)

Weekly Code(01~53)

Yearly Code(2018=J 2019=K...)