



# PJ4812

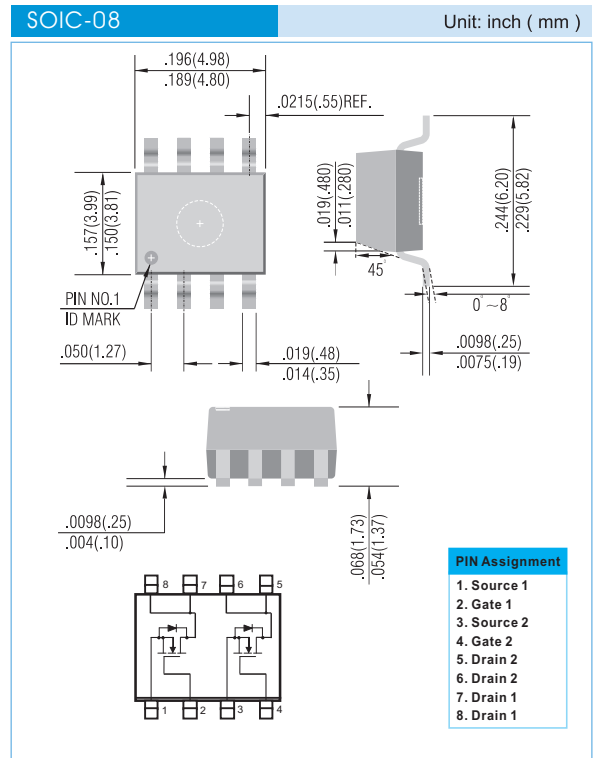
## 30V N-Channel Enhancement Mode MOSFET

### FEATURES

- $R_{DS(ON)}$ ,  $V_{GS}@10V, I_{DS}@8A=17m\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}@5.0V, I_{DS}@6A=34m\Omega$
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for DC/DC Converters
- Fully Characterized Avalanche Voltage and Current
- Pb free product : 99% Sn above can meet RoHS environment substance directive request

### MECHANICAL DATA

- Case: SOIC-08 Package
- Terminals : Solderable per MIL-STD-750D, Method 1036.3
- Marking : 4812



### ABSOLUTE MAXIMUM RATINGS ( $T_C=25^\circ C$ unless otherwise noted )

PARAMETER		SYMBOL	VALUE	UNIT
Drain-Source Voltage		$V_{DS}$	30	V
Gate-Source Voltage		$V_{GS}$	$\pm 20$	V
Continous Drain Current	$T_C=25^\circ C$	$I_D$	8	A
Pulsed Drain Current <sup>(1)</sup>		$I_{DM}$	32	A
Avalanche Energy $L=0.1mH, I_D=8A, V_{DD}=25V$		$E_{AS}$	3.2	mJ
Power Dissipation	$T_C=25^\circ C$	$P_D$	2.4	W
	$T_C=75^\circ C$		1.2	
Operating Junction and Stroage Temperature Range		$T_J, T_{STG}$	-55 to +175	$^\circ C$
Junction-to-Ambient Thermal Resistance (PCB Mounted) <sup>2</sup>		$R_{\theta JA}$	62.5	$^\circ C/W$

- Note :**
1. Maximum DC current limited by the package
  2. Surface mounted on FR4 board,  $t \leq 10$  sec

PAN JIT RESERVES THE RIGHT TO IMPROVE PRODUCT DESIGN,FUNCTIONS AND RELIABILITY WITHOUT NOTICE

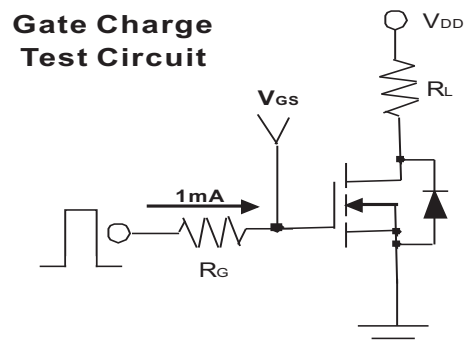
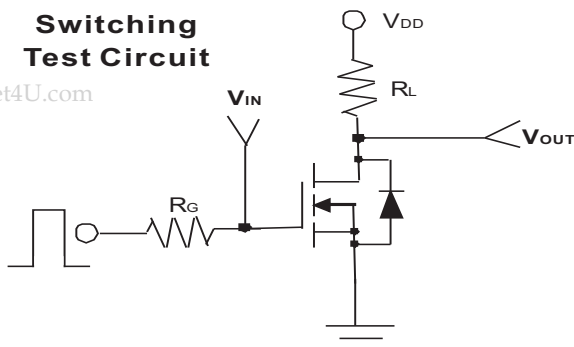


# PJ4812

ELECTRICAL CHARACTERISTICS (T<sub>c</sub>=25°C, Unless Otherwise Noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
<b>STATIC</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	30	-	-	V
Gate Threshold Voltage	V <sub>GS(TH)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	1	-	3	V
Drain-Source On-state Resistance	R <sub>DS(ON)</sub>	V <sub>GS</sub> =10V, I <sub>D</sub> =8A	-	15	17	mΩ
		V <sub>GS</sub> =5V, I <sub>D</sub> =6A	-	26	34	mΩ
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> =0V, V <sub>GS</sub> =±20V	-	-	±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =24V, V <sub>GS</sub> =0V	-	-	1	μA
		V <sub>DS</sub> =24V, V <sub>GS</sub> =0V, T <sub>J</sub> =125°C	-	-	25	μA
On-State Drain Current	I <sub>D(ON)</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =10V	8	-	-	A
Forward Transconductance	g <sub>fs</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =8A	10	-	-	S
<b>DYNAMIC</b>						
Total Gate Charge	Q <sub>G</sub>	V <sub>DS</sub> =15V, V <sub>GS</sub> =5V, I <sub>D</sub> =8A	-	7.0	-	nC
		V <sub>DS</sub> =15V, V <sub>GS</sub> =10V I <sub>D</sub> =8A	-	-	14.2	-
Gate-Source Charge	Q <sub>GS</sub>		-	1.22	-	nC
Gate-Drain Charge	Q <sub>GD</sub>		-	3.44	-	nC
Turn-On Delay Time	t <sub>d(on)</sub>		-	7.8	-	nS
Rise Time	t <sub>r</sub>	V <sub>DS</sub> =15V, I <sub>D</sub> =1A, V <sub>GS</sub> =10V R <sub>GS</sub> =6Ω	-	11.6	-	nS
Turn-Off Delay Time	t <sub>d(off)</sub>		-	28.8	-	nS
Fall Time	t <sub>f</sub>		-	5.6	-	nS
Input Capacitance	C <sub>ISS</sub>	V <sub>GS</sub> =0V, V <sub>DS</sub> =15V f=1MHz	-	520	-	pF
Output Capacitance	C <sub>OSS</sub>		-	112	-	pF
Reverse Transfer Capacitance	C <sub>RSS</sub>		-	98	-	pF
Gate Resistance	R <sub>g</sub>	V <sub>GS</sub> =15mV, V <sub>DS</sub> =0V, f=1MHz	-	2.0	-	Ω
<b>SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS</b>						
Continuous Current	I <sub>S</sub>		-	-	2.3	A
Forward Voltage	V <sub>SD</sub>	I <sub>F</sub> =2.3A, V <sub>GS</sub> =0V	-	-	1.2	V

**NOTE** : Plus Test: Pluse Width ≤ 300us, Duty Cycle ≤ 2%.





# PJ4812

Typical Characteristics Curves ( Ta=25°C, unless otherwise noted)

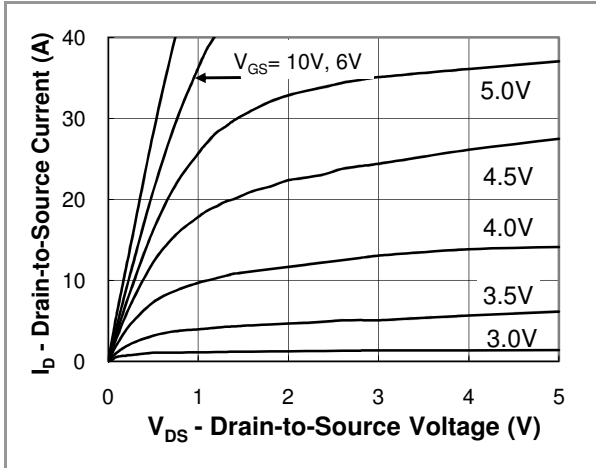


Fig.1 Output Characteristic

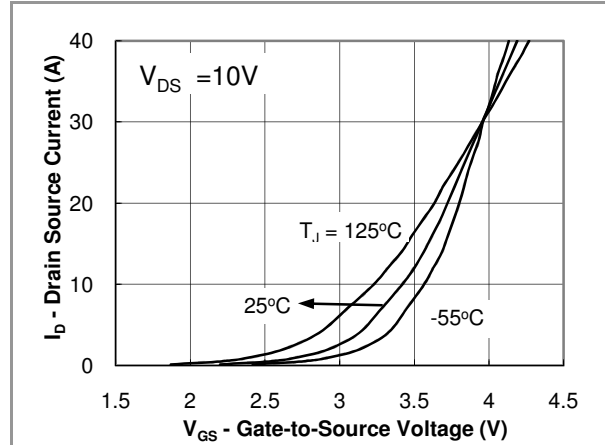


Fig.2 Transfer Characteristic

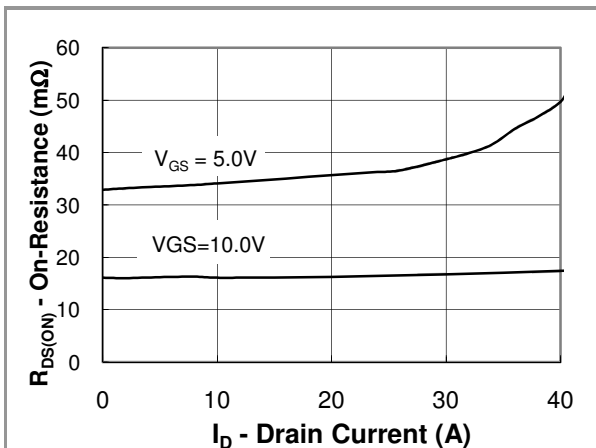


Fig.3 On Resistance vs Drain Current

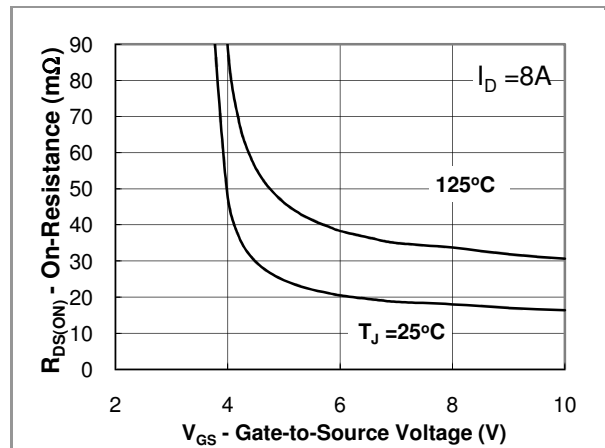


Fig.4 On Resistance vs Gate to Source Voltage

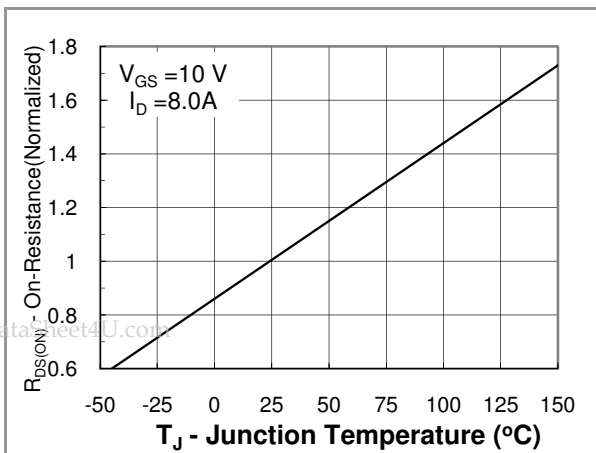


Fig.5 On Resistance vs Junction Temperature

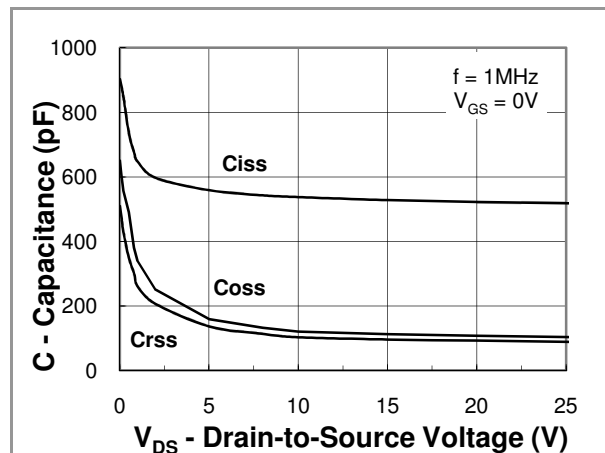


Fig.6 Capacitance



# PJ4812

Typical Characteristics Curves (  $T_a=25^\circ\text{C}$ , unless otherwise noted)

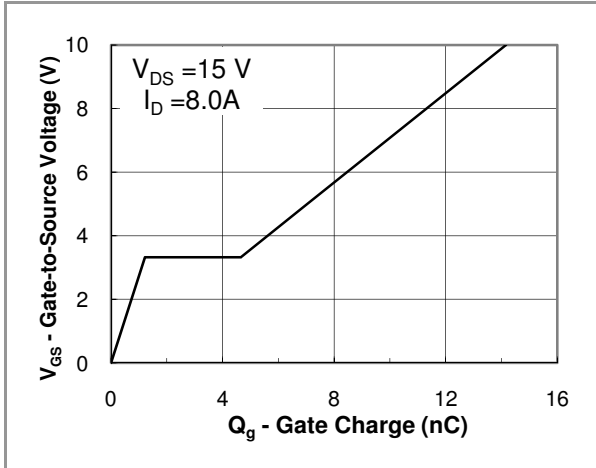


Fig. 7 Gate Charge Waveform

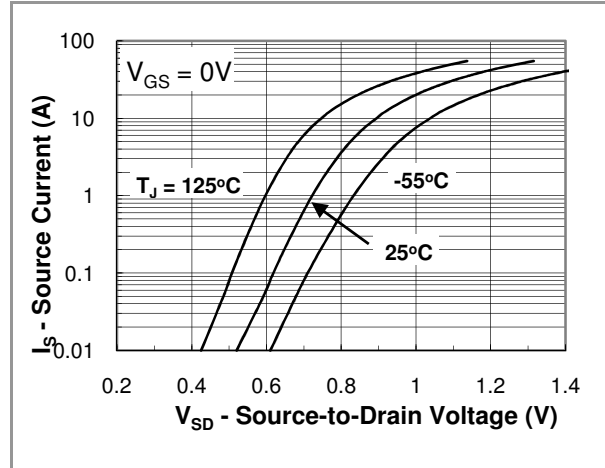


Fig. 8 Source-Drain Diode Forward Voltage

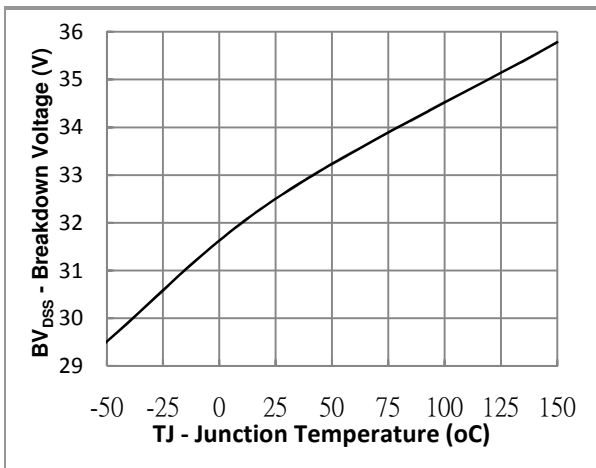


Fig.9 Breakdown Voltage vs Junction Temperature

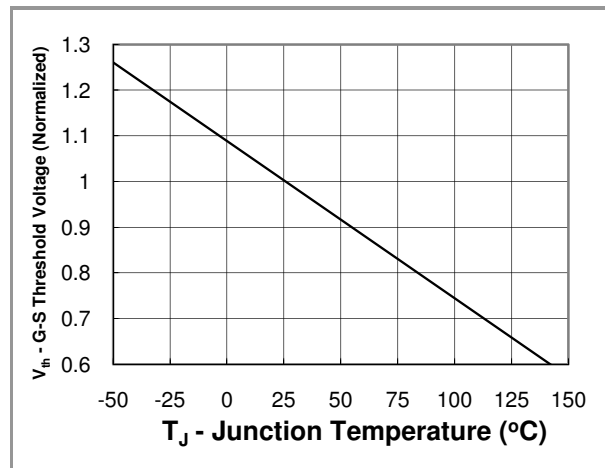
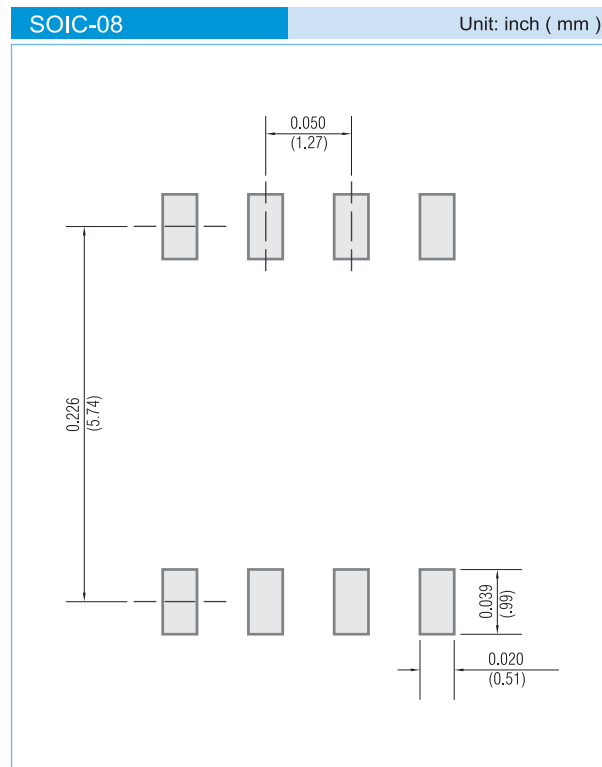


Fig.10 Threshold Voltage vs Junction Temperature



# PJ4812

## MOUNTING PAD LAYOUT



### ORDER INFORMATION

- Packing information  
T/R - 3K per 13" plastic Reel

### LEGAL STATEMENT

**Copyright PanJit International, Inc 2010**

The information presented in this document is believed to be accurate and reliable. The specifications and information herein are subject to change without notice. Pan Jit makes no warranty, representation or guarantee regarding the suitability of its products for any particular purpose. Pan Jit products are not authorized for use in life support devices or systems. Pan Jit does not convey any license under its patent rights or rights of others.