

PJ6680

25V N-Channel Enhancement Mode MOSFET

FEATURES

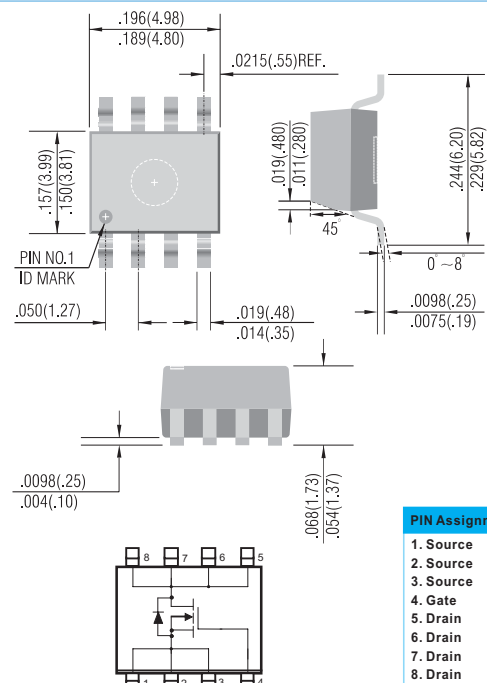
- $R_{DS(ON)}$, $V_{GS}@10V, I_{DS}@12A=10m\Omega$
- $R_{DS(ON)}$, $V_{GS}@4.5V, I_{DS}@10A=18m\Omega$
- Advanced Trench Process Technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for DC/DC Converters
- Fully Characterized Avalanche Voltage and Current
- Pb free product : 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 : 6680

SOIC-08

Unit: inch (mm)



Maximum RATINGS and Thermal Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	25	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	12	A
Pulsed Drain Current ¹⁾	I_{DM}	50	A
Maximum Power Dissipation	P_D	2.5 1.5	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 to + 150	°C
Avalanche Energy with Single Pulse ID=27A, VDD=25V, L=0.5mH	E_{AS}	180	mJ
Junction-to Ambient Thermal Resistance(PCB mounted) ²	$R_{\theta JA}$	50	°C/W

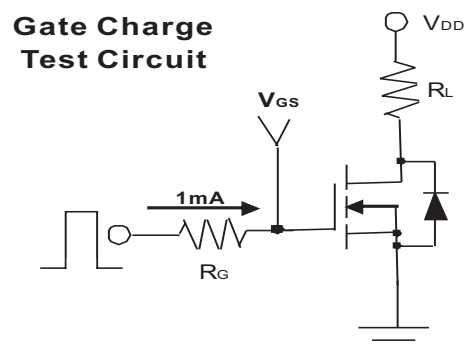
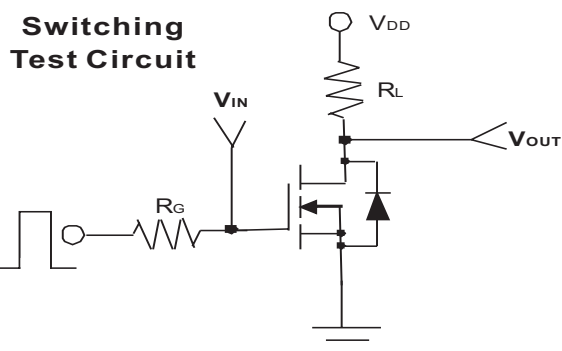
Note: 1. Maximum DC current limited by the package
2. Surface mounted on FR4 board, t ≤ 10 sec

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ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	25	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	1	-	3	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=10A$	-	13.0	18.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=12A$	-	7.4	10.0	
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=25V, V_{GS}=0V$	-	-	1	μA
Gate Body Leakage	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	±100	nA
Forward Transconductance	g_{fs}	$V_{DS}=10V, I_D=12A$	30	-	-	S
Dynamic						
Total Gate Charge	Q_g	$V_{DS}=15V, I_D=12A, V_{GS}=5V$	-	20.7	-	nC
		$V_{DS}=15V, I_D=12A$ $V_{GS}=10V$	-	39.0	-	
Q_{gs}	-		6.0	-		
Q_{gd}	-		7.6	-		
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=15V, R_L=15\Omega$ $I_D=1A, V_{GEN}=10V$ $R_G=3.6\Omega$	-	13.0	14.6	ns
Turn-On Rise Time	t_{rr}		-	10.4	12.4	
Turn-Off Delay Time	$t_{d(off)}$		-	41.2	48.6	
Turn-Off Fall Time	t_f		-	13.4	15.8	
Input Capacitance	C_{iss}	$V_{DS}=15V, V_{GS}=0V$ $f=1.0MHz$	-	2100	-	pF
Output Capacitance	C_{oss}		-	450	-	
Reverse Transfer Capacitance	C_{rss}		-	300	-	
Source-Drain Diode						
Max. Diode Forward Current	I_s	-	-	-	2.5	A
Diode Forward Voltage	V_{SD}	$I_s=2.5A, V_{GS}=0V$	-	0.74	1.2	V



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

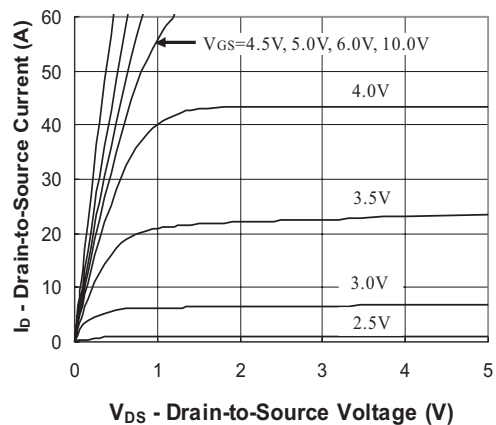


FIG.1- Output Characteristic

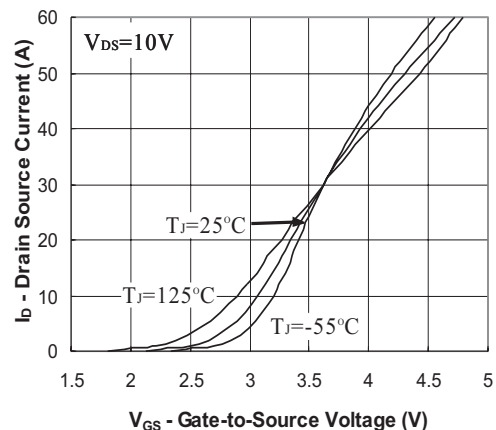


FIG.2- Transfer Characteristic

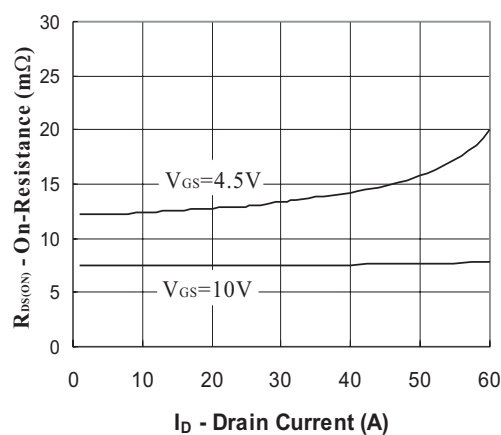


FIG.3- On Resistance vs Drain Current

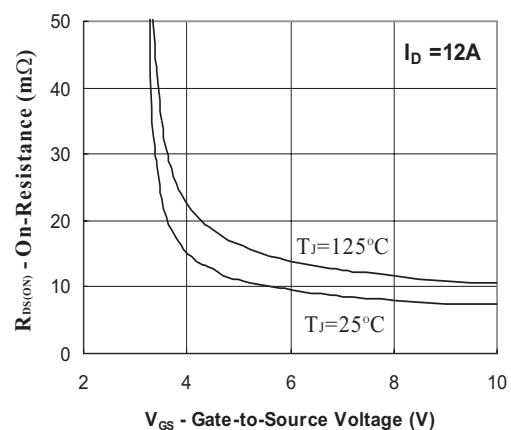


FIG.4- On Resistance vs Gate to Source Voltage

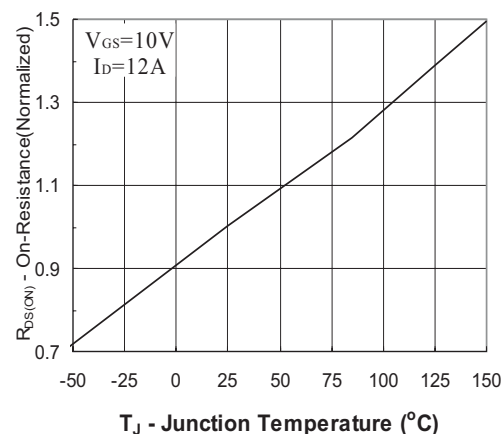


FIG.5- On Resistance vs Junction Temperature

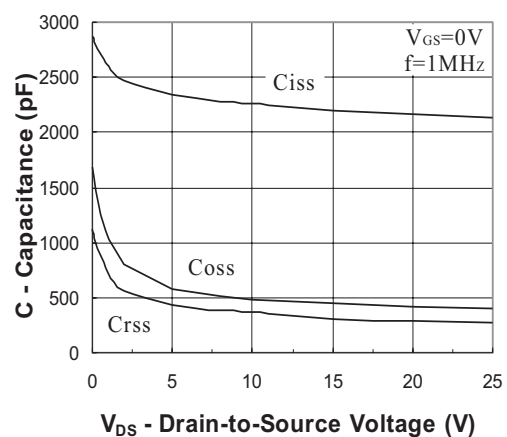


FIG.6- Capacitance

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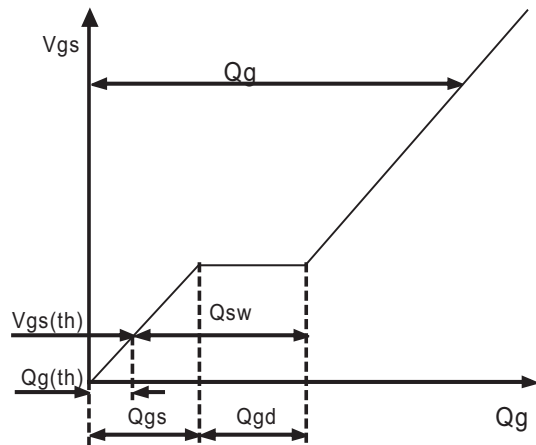


Fig.7 - Gate Charge Waveform

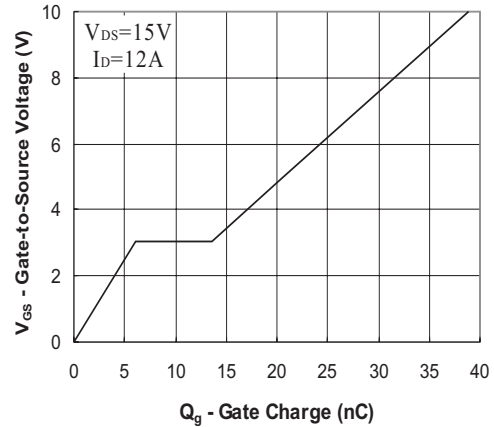


Fig.8 - Gate Charge

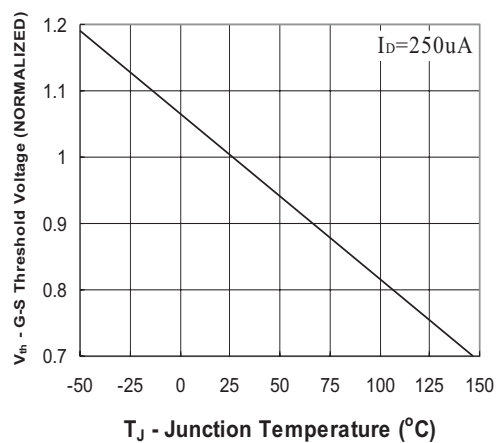


Fig.9 - Threshold Voltage vs Temperature

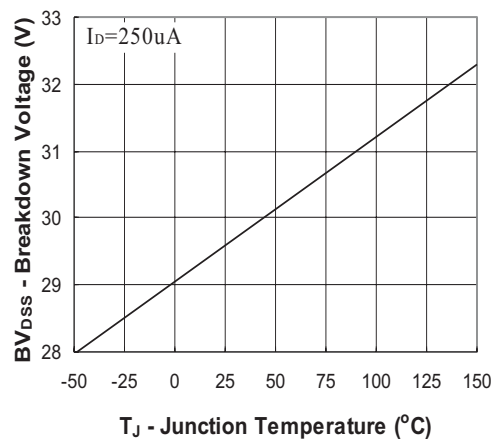


Fig.10 - Breakdown Voltage vs Junction Temperature

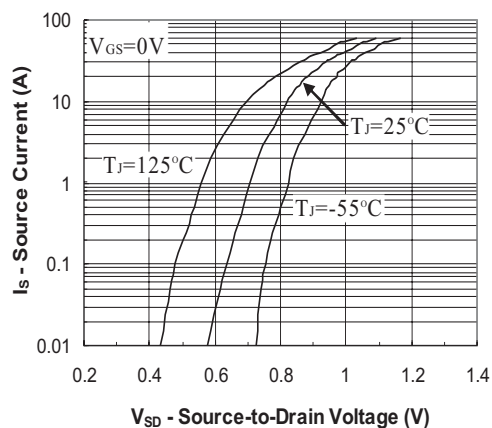
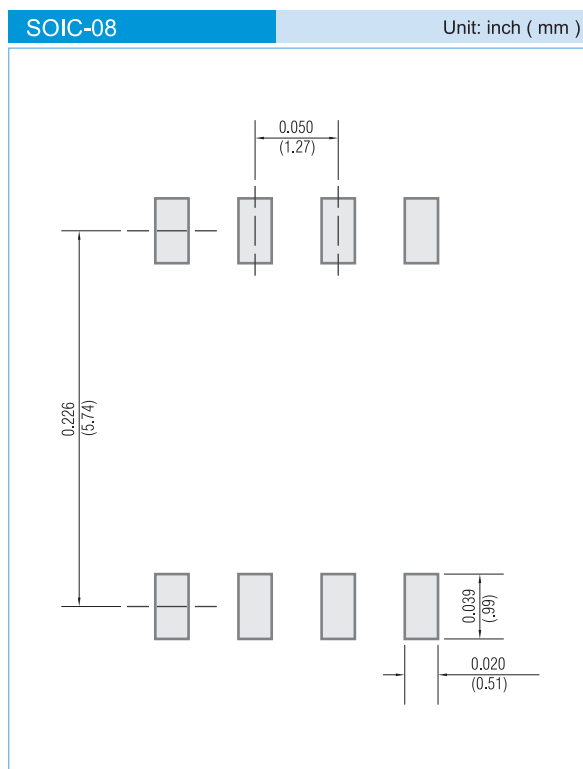


Fig.11 - Source-Drain Diode Forward Voltage

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MOUNTING PAD LAYOUT



ORDER INFORMATION

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

LEGAL STATEMENT

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