



# PJD06N03

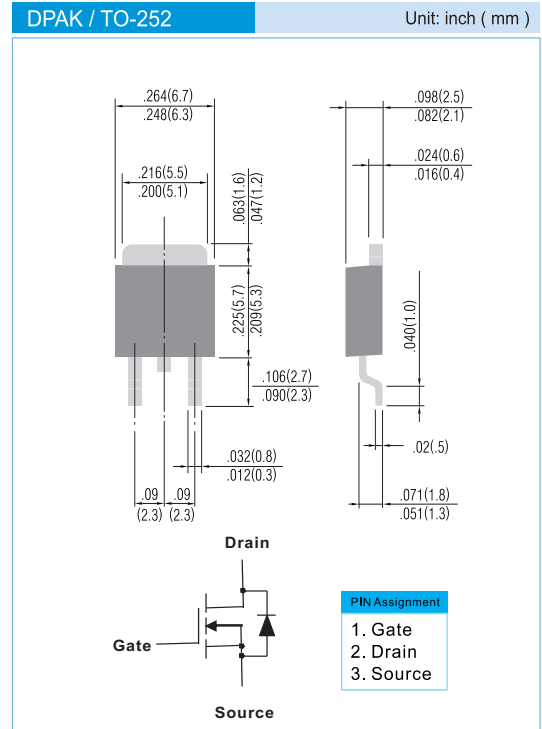
## 25V N-Channel Enhancement Mode MOSFET

### FEATURES

- $R_{DS(ON)}$ ,  $V_{GS}$  @ 10V,  $I_{DS}$  @ 30A=6m $\Omega$
- $R_{DS(ON)}$ ,  $V_{GS}$  @ 4.5V,  $I_{DS}$  @ 30A=9m $\Omega$
- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- Specially Designed for DC/DC Converters and Motor Drivers
- Fully Characterized Avalanche Voltage and Current
- Pb free product : 99% Sn above can meet RoHS environment substance directive request

### MECHANICAL DATA

- Case: TO-252 Molded Plastic
- Terminals : Solderable per MIL-STD-750, Method 2026
- Marking : 06N03



### Maximum RATINGS and Thermal Characteristics ( $T_A=25^\circ\text{C}$ unless otherwise noted)

PARAMETER	Symbol	Limit	Units
Drain-Source Voltage	$V_{DS}$	25	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	60	A
Pulsed Drain Current <sup>1)</sup>	$I_{DM}$	280	A
Maximum Power Dissipation	$P_D$	62.5 37.5	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 to + 150	$^\circ\text{C}$
Avalanche Energy with Single Pulse ID=27A, VDD=25V, L=0.5mH	$E_{AS}$	180	mJ
Junction-to-Case Thermal Resistance	$R_{\theta JC}$	2.0	$^\circ\text{C/W}$
Junction-to Ambient Thermal Resistance(PCB mounted) <sup>2)</sup>	$R_{\theta JA}$	50	$^\circ\text{C/W}$

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

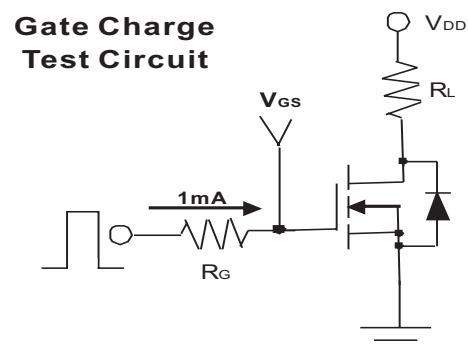
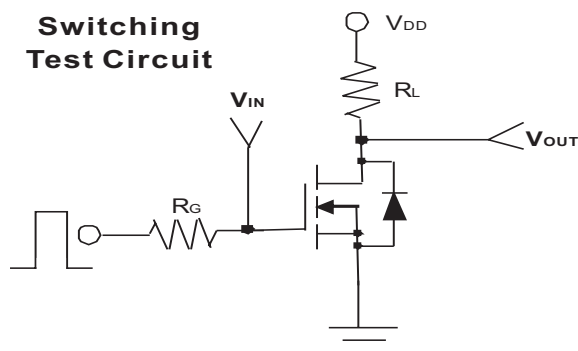
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## ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Units
<b>Static</b>						
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	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=30A$	-	7.5	9.0	m $\Omega$
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=30A$	-	5.0	6.0	
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=25V, V_{GS}=0V$	-	-	1	$\mu A$
Gate Body Leakage	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	$\pm 100$	nA
Forward Transconductance	$g_{fs}$	$V_{DS}=10V, I_D=15A$	30	-	-	S
<b>Dynamic</b>						
Total Gate Charge	$Q_g$	$V_{DS}=15V, I_D=15A, V_{GS}=5V$	-	21.8	-	nC
Gate-Source Charge	$Q_{gs}$	$V_{DS}=15V, I_D=15A, V_{GS}=10V$	-	38.2	-	
Gate-Drain Charge	$Q_{gd}$		-	9.5	-	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=15V, R_L=15\Omega, I_b=1A, V_{GEN}=10V, R_G=3.6\Omega$	-	11.5	16	ns
Turn-On Rise Time	$t_{rr}$		-	11.0	18	
Turn-Off Delay Time	$t_{d(off)}$		-	43	60	
Turn-Off Fall Time	$t_f$		-	17.5	25	
Input Capacitance	$C_{iss}$	$V_{DS}=15V, V_{GS}=0V, f=1.0MHz$	-	1750	-	pF
Output Capacitance	$C_{oss}$		-	480	-	
Reverse Transfer Capacitance	$C_{rss}$		-	310	-	
<b>Source-Drain Diode</b>						
Max. Diode Forward Current	$I_s$	-	-	-	60	A
Diode Forward Voltage	$V_{SD}$	$I_s=30A, V_{GS}=0V$	-	0.9	1.2	V





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

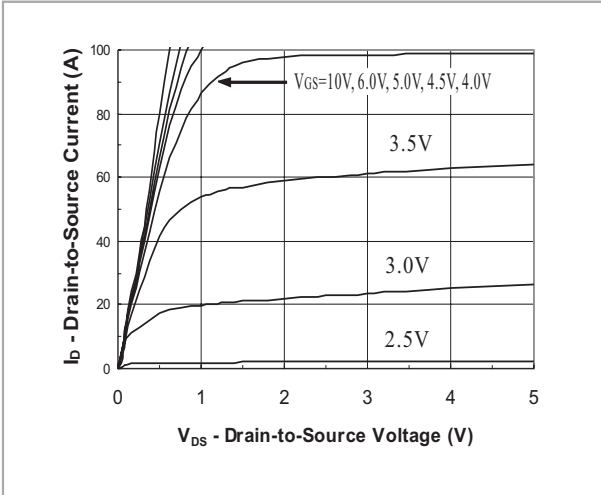


FIG.1- Output Characteristic

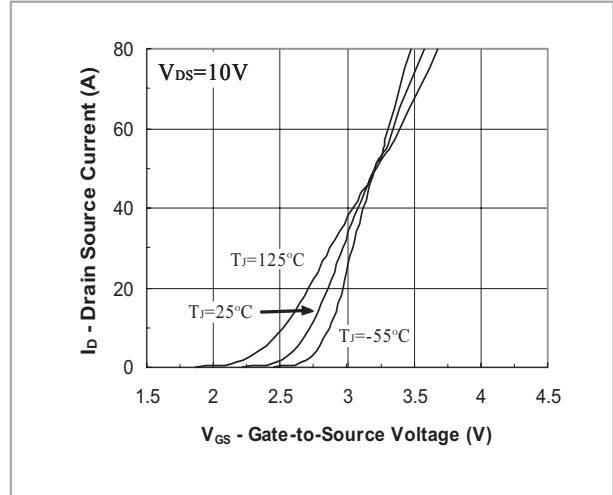


FIG.2- Transfer Characteristic

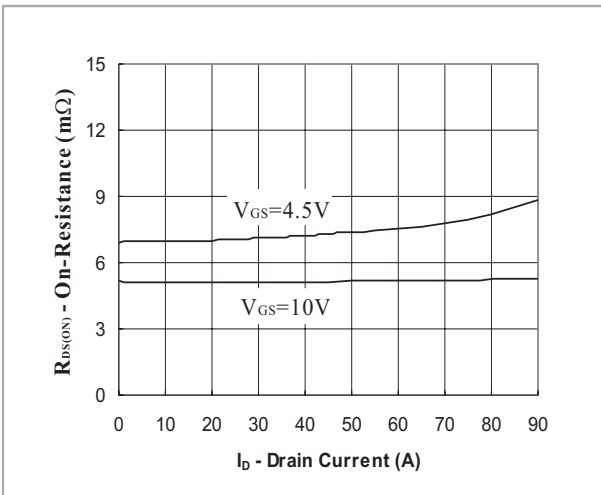


FIG.3- On Resistance vs Drain Current

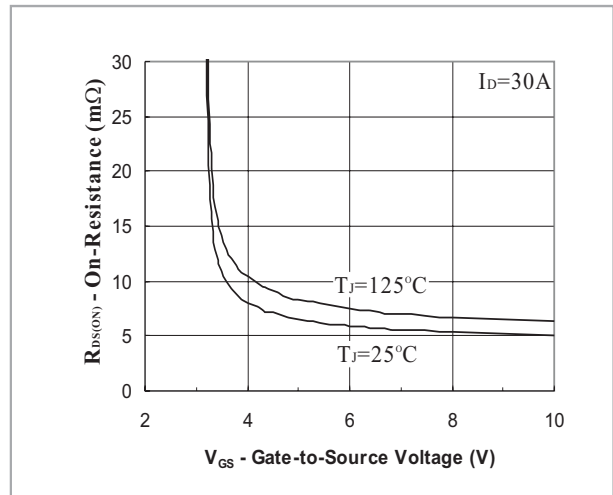


FIG.4- On Resistance vs Gate to Source Voltage

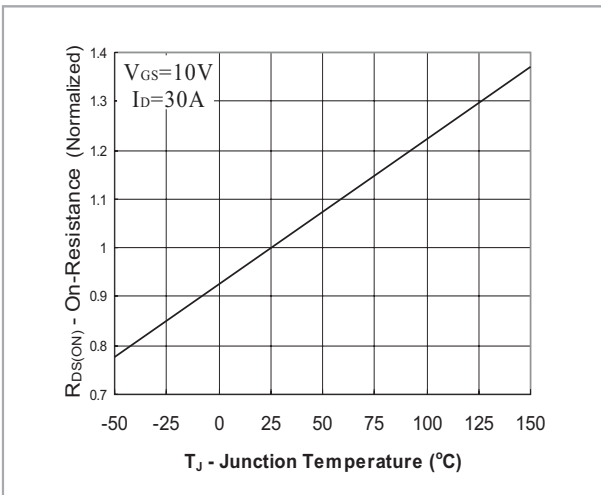


FIG.5- On Resistance vs Junction Temperature



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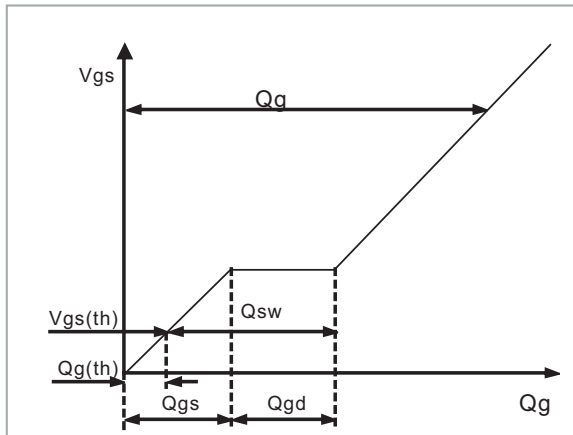


Fig.6 - Gate Charge Waveform

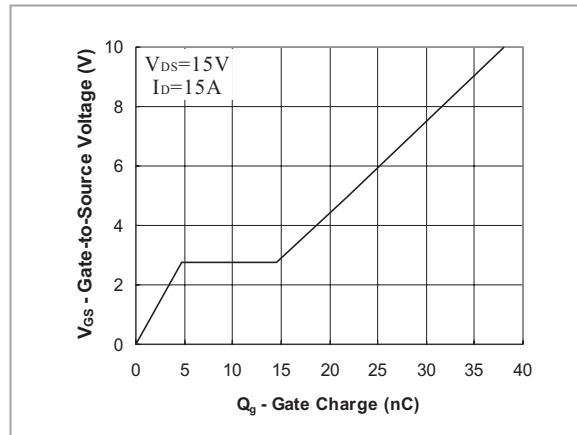


Fig.7 - Gate Charge

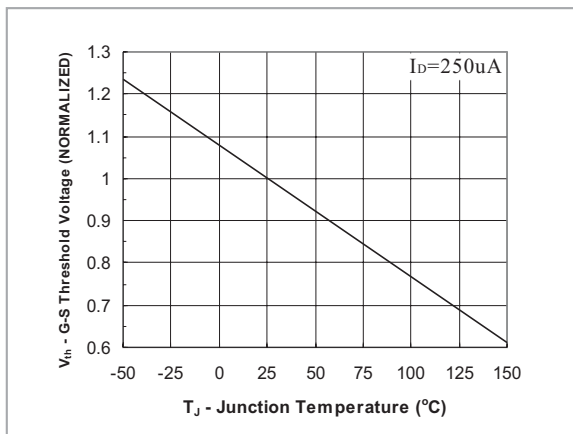


Fig.8 - Threshold Voltage vs Temperature

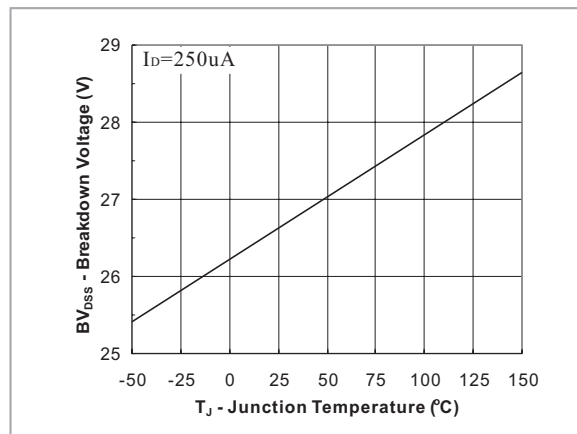


Fig.9 - Breakdown Voltage vs Junction Temperature

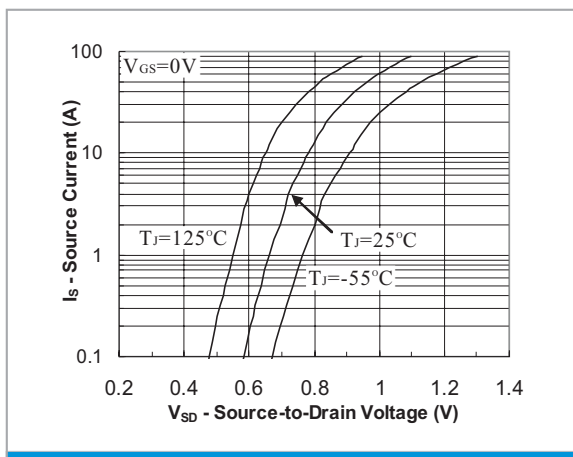


Fig.10 - Source-Drain Diode Forward Voltage

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