



# PJM4602DNSG-S

## Dual N-Channel MOSFET

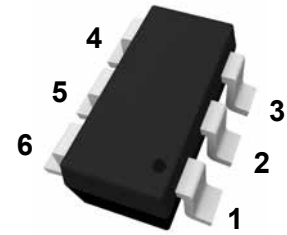
### Features

- Fast Switching
- Low Gate Charge and  $R_{DS(on)}$
- High power and current handing capability

### Applications

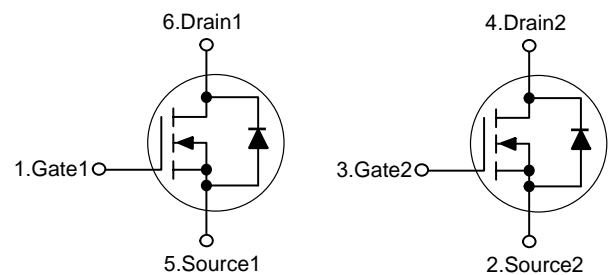
- Battery protection
- Load switch
- Power management

SOT-23-6



Marking Code: DS02

Schematic Diagram



### Absolute Maximum Ratings

Ratings at  $T_A = 25^\circ\text{C}$  unless otherwise specified.

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	$V_{DS}$	20	V
Gate-Source Voltage	$V_{GS}$	$\pm 12$	V
Drain Current-Continuous	$I_D$	2	A
Drain Current-Plused <sup>Note1</sup>	$I_{DM}$	10	A
Maximum Power Dissipation	$P_D$	1	W
Operating Junction and Storage Temperature Range	$T_J, T_{STG}$	-55 To 150	$^\circ\text{C}$

### Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance, Junction-to-Ambient <sup>Note2</sup>	$R_{\theta JA}$	125	$^\circ\text{C/W}$



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### Electrical Characteristics

T<sub>A</sub> = 25°C unless otherwise specified.

Parameter	Symbol	Condition	Min	Typ	Max	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> =0V, I <sub>D</sub> =250μA	20	-	-	V
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> =20V, V <sub>GS</sub> =0V	-	-	1	μA
Gate-Body Leakage Current	I <sub>GSS</sub>	V <sub>GS</sub> =±12V, V <sub>DS</sub> =0V	-	-	±100	nA
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA	0.4	0.8	1.2	V
Drain-Source On-State Resistance <sup>Note3</sup>	R <sub>DS(ON)</sub>	V <sub>GS</sub> =2.5V, I <sub>D</sub> =1A	-	60	80	mΩ
		V <sub>GS</sub> =4.5V, I <sub>D</sub> =2A	-	48	60	mΩ
Forward Transconductance <sup>Note3</sup>	g <sub>FS</sub>	V <sub>DS</sub> =5V, I <sub>D</sub> =2A	-	5	-	S
<b>Dynamic Characteristics</b>						
Input Capacitance	C <sub>iss</sub>	V <sub>DS</sub> =10V, V <sub>GS</sub> =0V, f=1.0MHz	-	260	-	pF
Output Capacitance	C <sub>oss</sub>		-	48	-	pF
Reverse Transfer Capacitance	C <sub>rss</sub>		-	27	-	pF
<b>Switching Characteristics</b>						
Turn-on Delay Time	t <sub>d(on)</sub>	V <sub>DD</sub> =10V, R <sub>L</sub> =3.3Ω V <sub>GS</sub> =4.5V, R <sub>GEN</sub> =6Ω	-	2.5	-	nS
Turn-on Rise Time	t <sub>r</sub>		-	3.2	-	nS
Turn-Off Delay Time	t <sub>d(off)</sub>		-	21	-	nS
Turn-Off Fall Time	t <sub>f</sub>		-	3	-	nS
Total Gate Charge	Q <sub>g</sub>	V <sub>DS</sub> =10V, I <sub>D</sub> =2A, V <sub>GS</sub> =4.5V	-	2.9	5	nC
Gate-Source Charge	Q <sub>gs</sub>		-	0.4	-	nC
Gate-Drain Charge	Q <sub>gd</sub>		-	0.6	-	nC
<b>Drain-Source Diode Characteristics</b>						
Diode Forward Voltage <sup>Note 3</sup>	V <sub>SD</sub>	V <sub>GS</sub> =0V, I <sub>S</sub> =2A	-	-	1.2	V
Diode Forward Current <sup>Note 2</sup>	I <sub>S</sub>		-	-	2	A

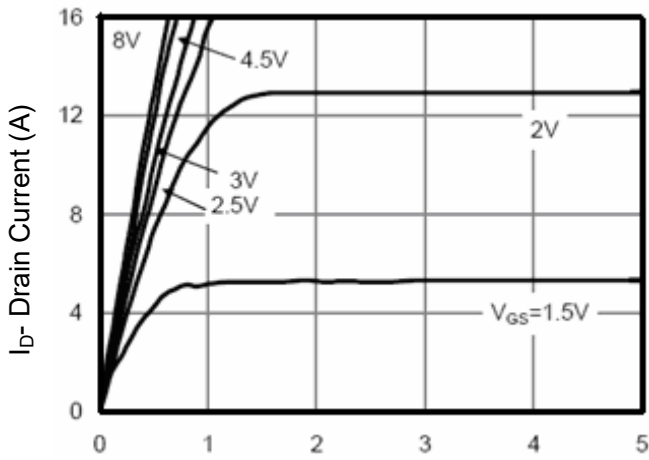
Notes: 1. Repetitive rating; pulsed width limited by maximum junction temperature.

2. Surface Mounted on FR4 Board, t ≤ 10 sec.

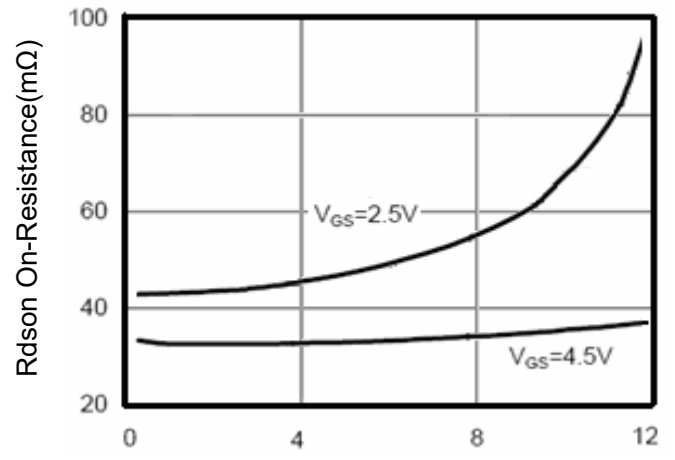
3. Pulse width ≤ 300μs, duty cycle ≤ 2%



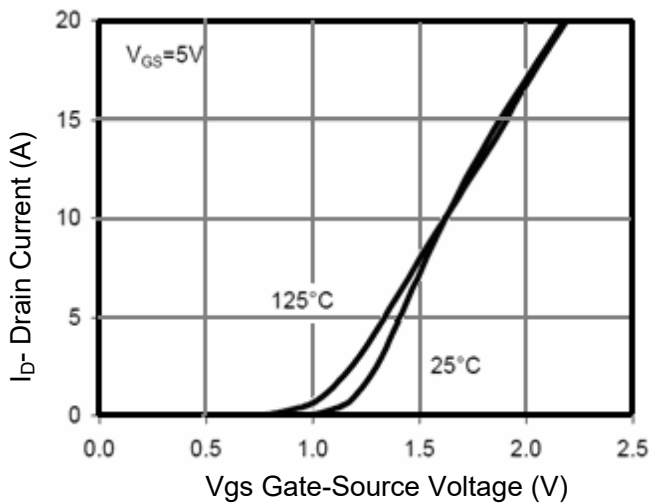
### Electrical Characteristics Curves



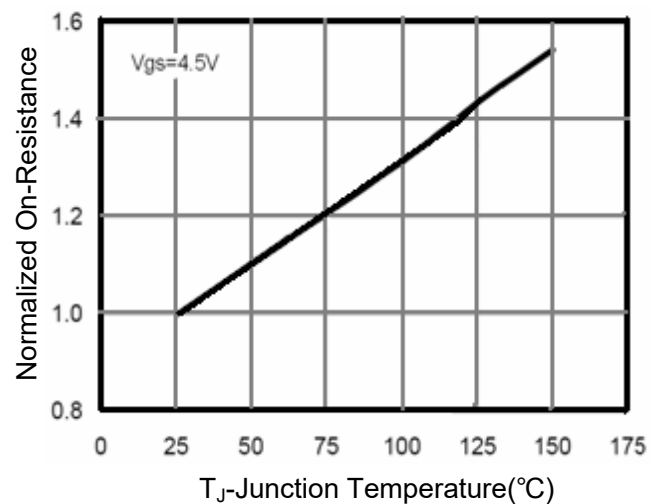
V<sub>DS</sub> Drain-Source Voltage (V)  
**Figure 1 Output Characteristics**



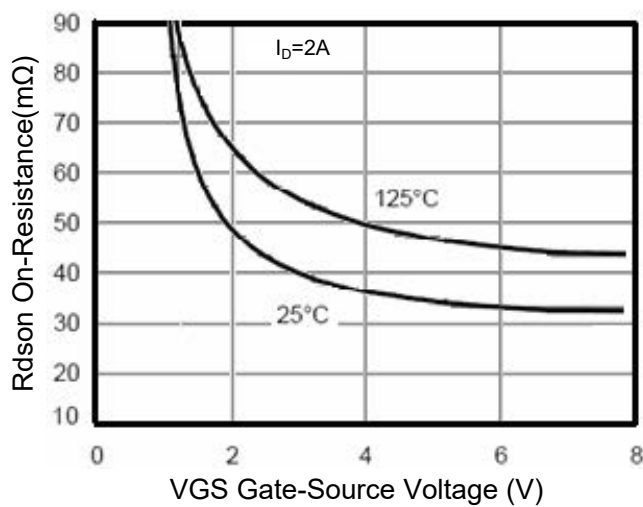
$I_D$ - Drain Current (A)  
**Figure 2 Drain-Source On-Resistance**



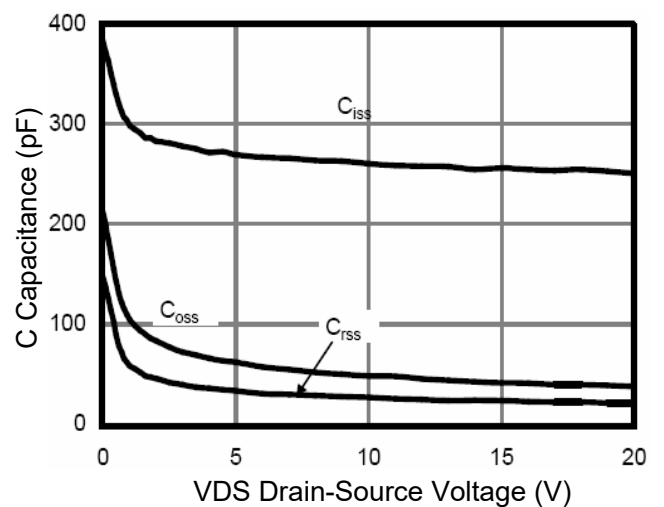
V<sub>GS</sub> Gate-Source Voltage (V)  
**Figure 3 Transfer Characteristics**



$T_J$ -Junction Temperature(°C)  
**Figure 4 Drain-Source On-Resistance**



V<sub>GS</sub> Gate-Source Voltage (V)  
**Figure 5  $R_{DS(on)}$  vs  $V_{GS}$**

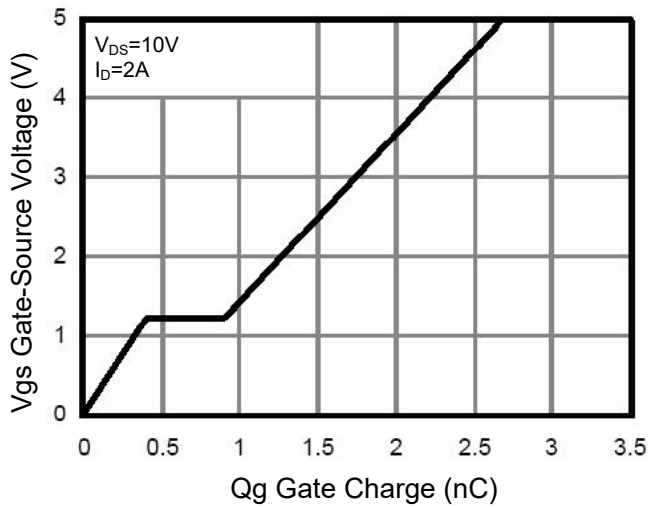


V<sub>DS</sub> Drain-Source Voltage (V)  
**Figure 6 Capacitance vs  $V_{DS}$**

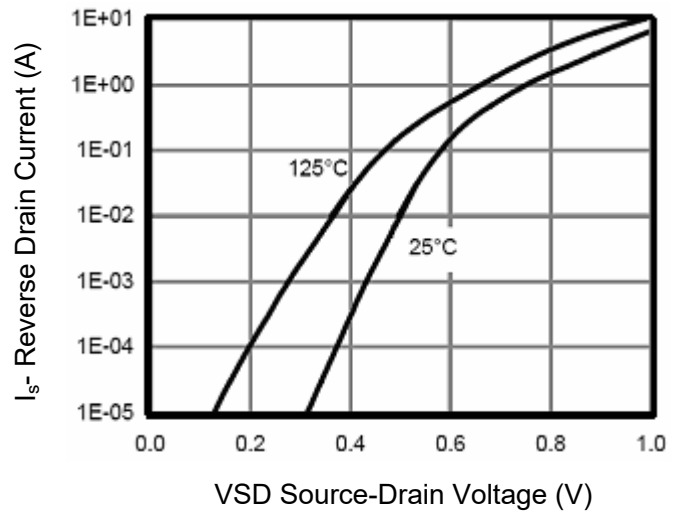


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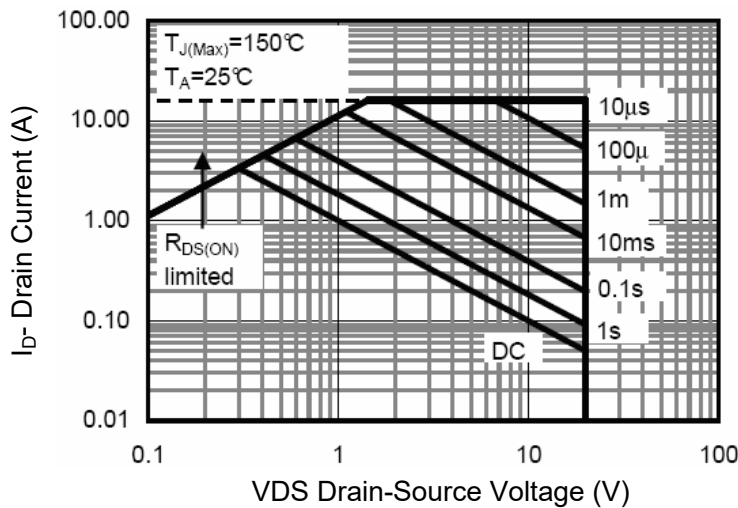
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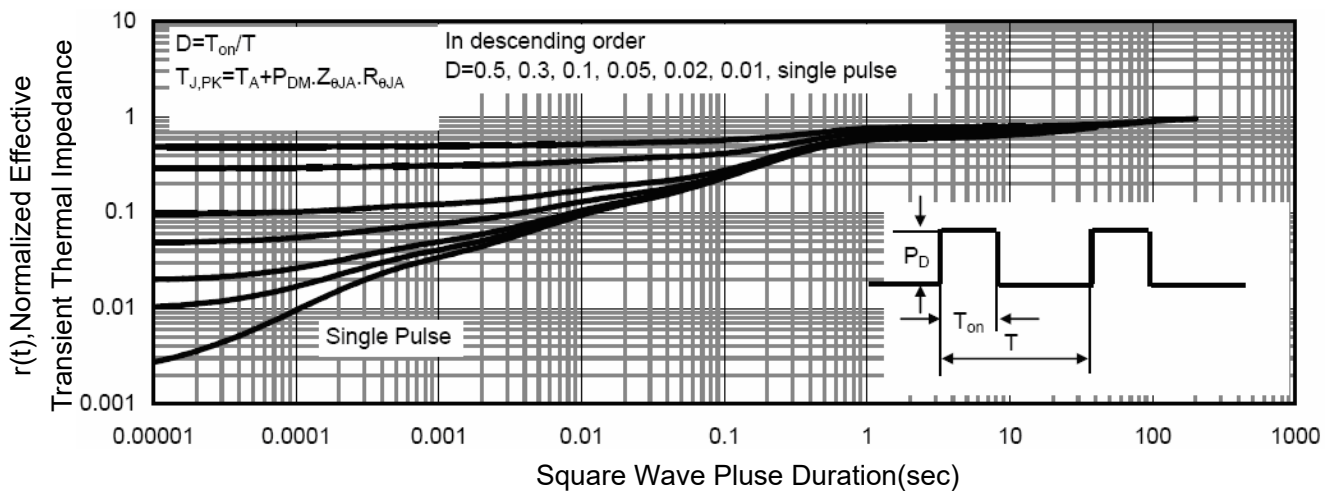
**Figure 7 Gate Charge**



**Figure 8 Source- Drain Diode Forward**



**Figure 9 Safe Operation Area**



**Figure 10 Normalized Maximum Transient Thermal Impedance**



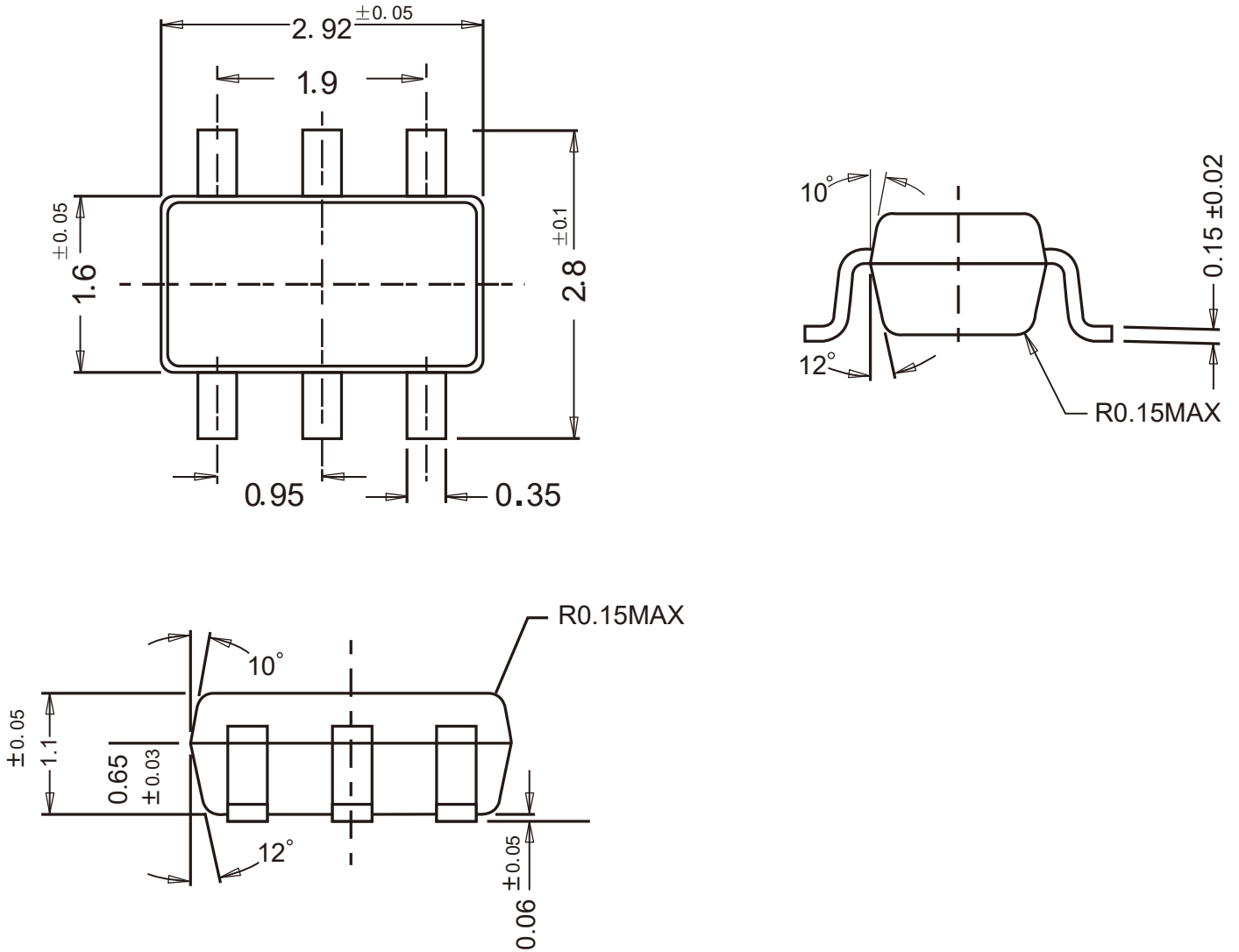
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### Package Outline

SOT-23-6

Dimensions in mm



### Ordering Information

Device	Package	Shipping
PJM4602DNSG-S	SOT-23-6	3000/Reel&Tape(7inch)