

产品规格书

DP8205B(SOT23-6)

Datasheet of DP8205B(SOT23-6)

深圳市德普微电子有限公司

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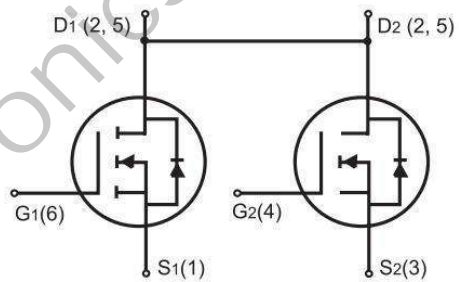
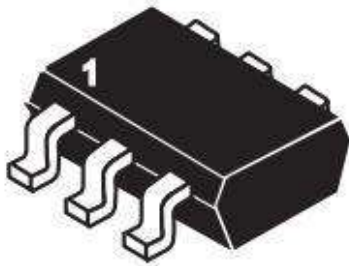


DP8205B

Dual N-Channel Enhancement Power MOSFET

General Description	Product Summary								
<p>DP8205B uses advanced trench technology to provide excellent $R_{DS(ON)}$, low gate charge and operation with gate voltages as low as 2.5V. This device is suitable for use as a Battery protection or in other Switching application.</p>	<table> <tr> <td>V_{DS}</td> <td>20V</td> </tr> <tr> <td>I_D (at $V_{GS}=4.5V$)</td> <td>6.5A</td> </tr> <tr> <td>$R_{DS(ON)}$ (at $V_{GS} = 4.5V$)</td> <td><16mR</td> </tr> <tr> <td>$R_{DS(ON)}$ (at $V_{GS} = 2.5V$)</td> <td><21mR</td> </tr> </table>	V_{DS}	20V	I_D (at $V_{GS}=4.5V$)	6.5A	$R_{DS(ON)}$ (at $V_{GS} = 4.5V$)	<16mR	$R_{DS(ON)}$ (at $V_{GS} = 2.5V$)	<21mR
V_{DS}	20V								
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$R_{DS(ON)}$ (at $V_{GS} = 2.5V$)	<21mR								

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Absolute Maximum Ratings $T_A=25^\circ C$ unless otherwise noted

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Drain Current-Continuous @ $T_J=25^\circ C$	I_D	6.5	A
Pulsed ^b	I_{DM}	25	A
Drain-Source Diode Forward Current ^a	I_S	6.5	A
Maximum Power Dissipation ^a	P_D	1.25	W
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55 To 150	$^\circ C$

Thermal Characteristic

Parameter	Symbol	Limit	Unit
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Thermal Resistance, Junction-to-Ambient ^a	$R_{\theta JA}$	100	$^{\circ}\text{C}/\text{W}$
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Electrical Characteristics (TA=25°C unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ ^c	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$	-	-	± 100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=4.5A$	10	13.5	16	$m\Omega$
		$V_{GS}=2.5V, I_D=3.5A$	12	16.5	21	$m\Omega$
Forward Transconductance	g_{FS}	$V_{DS}=5V, I_D=4.5A$	-	10	-	S
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS}=10V,$ $V_{GS}=0V,$ $F=1.0MHz$	-	947	-	pF
Output Capacitance	C_{oss}		-	167	-	pF
Reverse Transfer Capacitance	C_{rss}		-	115	-	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	$V_{DD}=10V,$ $I_D=1A$ $V_{GS}=4.5V,$ $R_{GEN}=6\Omega,$ $R_L=10\Omega$	-	10	20	nS
Turn-on Rise Time	t_r		-	11	25	nS
Turn-Off Delay Time	$t_{d(off)}$		-	35	70	nS
Turn-Off Fall Time	t_f		-	30	60	nS
Total Gate Charge	Q_g	$V_{DS}=10V,$ $I_D=6A,$ $V_{GS}=4.5V$	-	11	18	nC
Gate-Source Charge	Q_{gs}		-	3.2	-	nC
Gate-Drain Charge	Q_{gd}		-	1.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=1.7A$	-	0.79	1.2	V



Notes:

- a. Surface Mounted on FR4 Board , $T < 10$ sec ;
- b. Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2\%$.
- c. Guaranteed by Design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

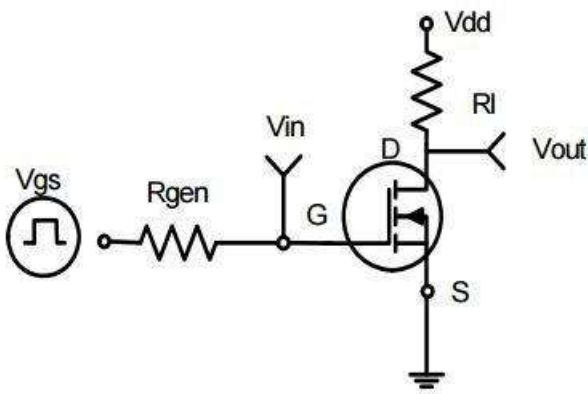


Figure 1: Switching Test Circuit

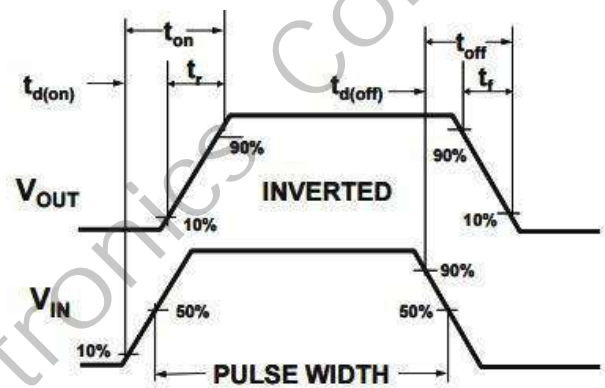


Figure 2: Switching Waveforms

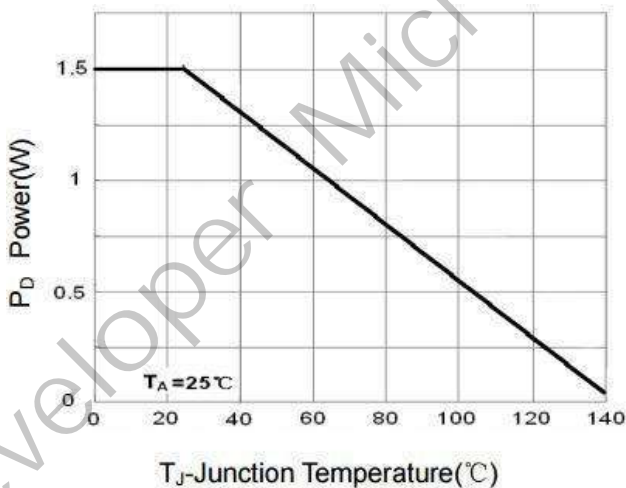


Figure 3 Power Dissipation

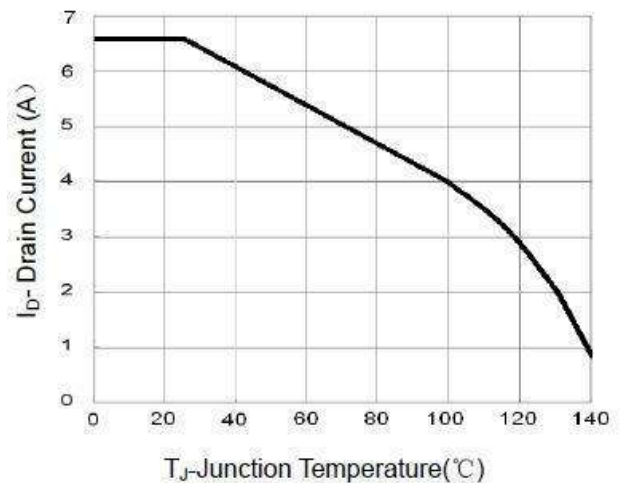


Figure 4 Drain Current



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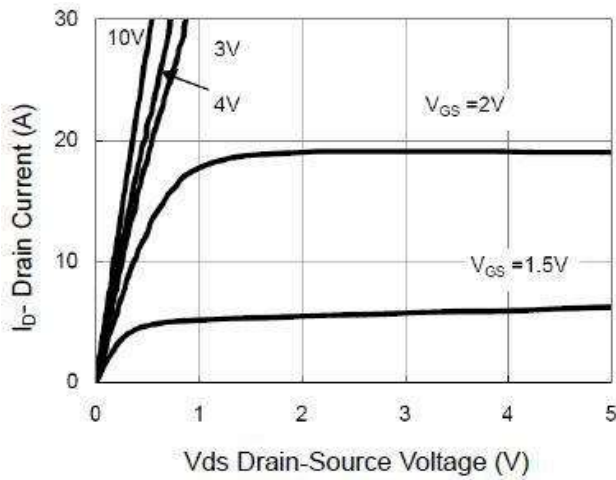


Figure 5 Output Characteristics

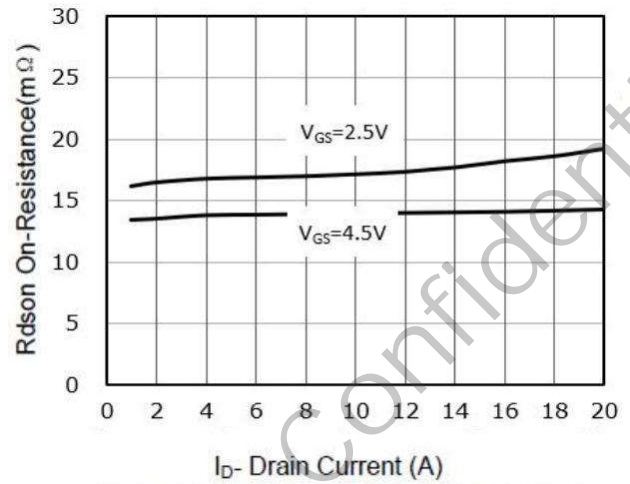


Figure 6 Drain-Source On-Resistance

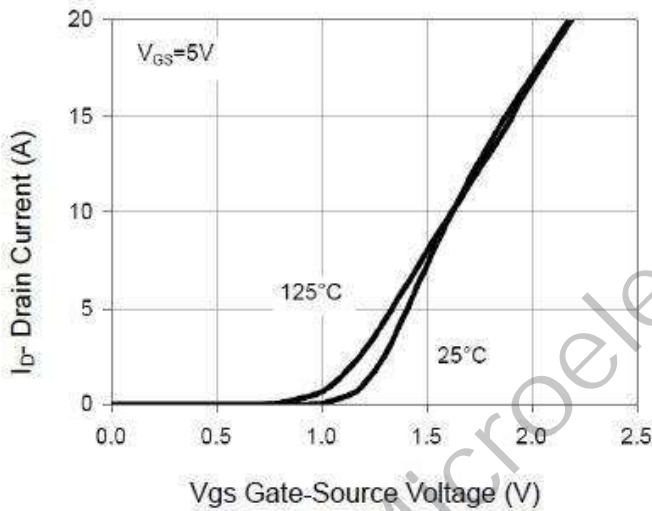


Figure 7 Transfer Characteristics

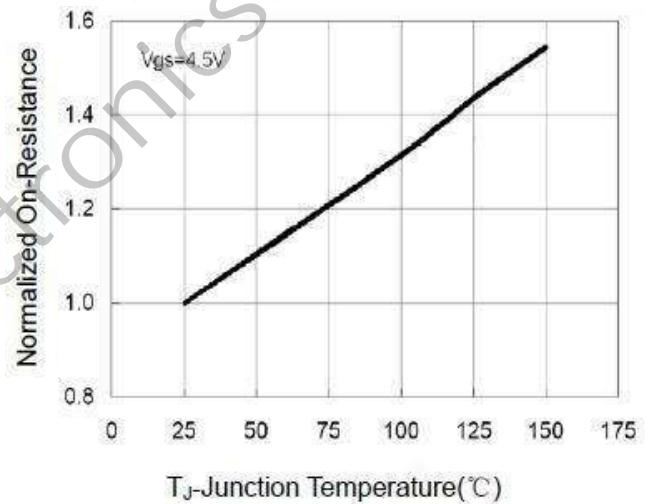


Figure 8 Drain-Source On-Resistance

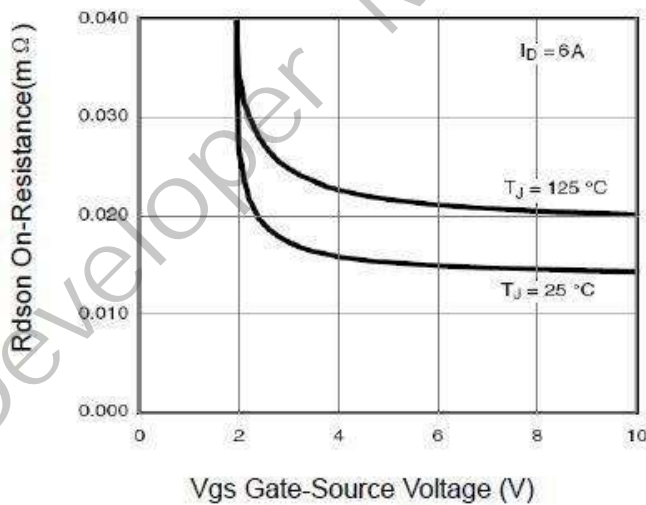


Figure 9 Rds(on) vs Vgs

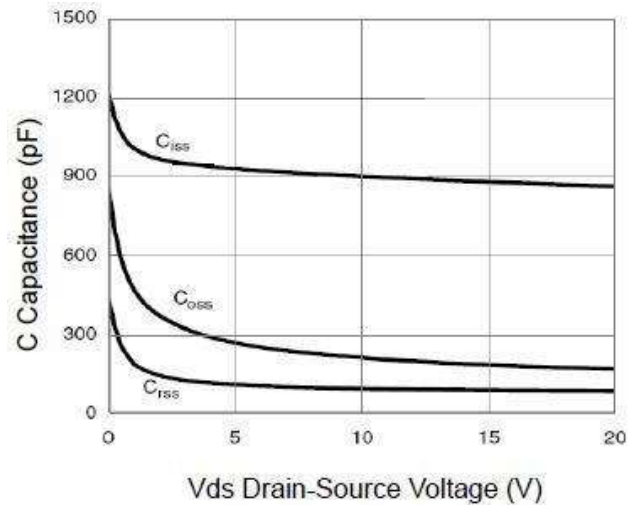


Figure 10 Capacitance vs Vds



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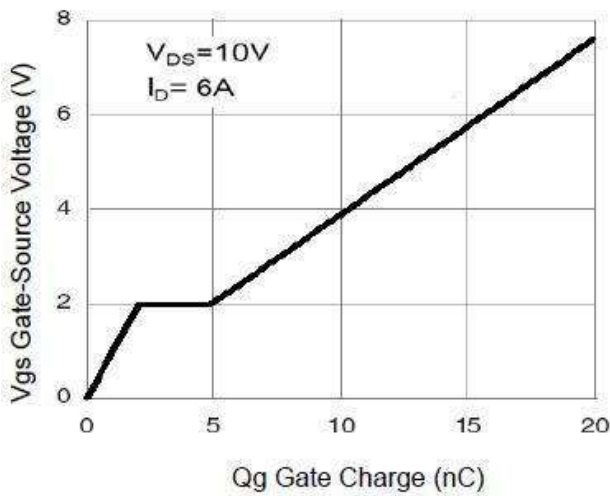


Figure 11 Gate Charge

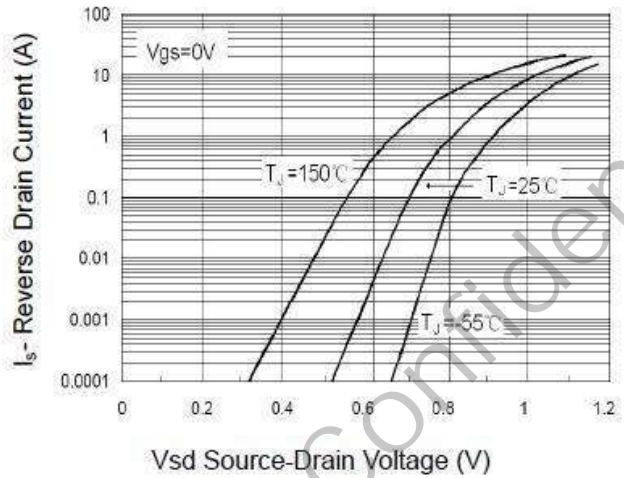


Figure 12 Source- Drain Diode Forward

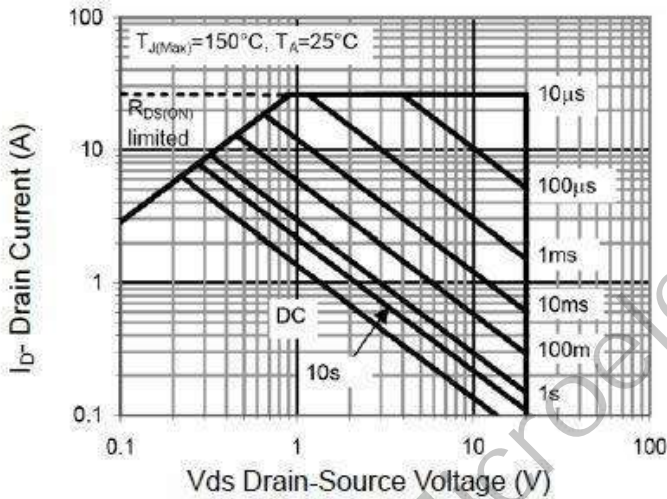


Figure 13 Safe Operation Area

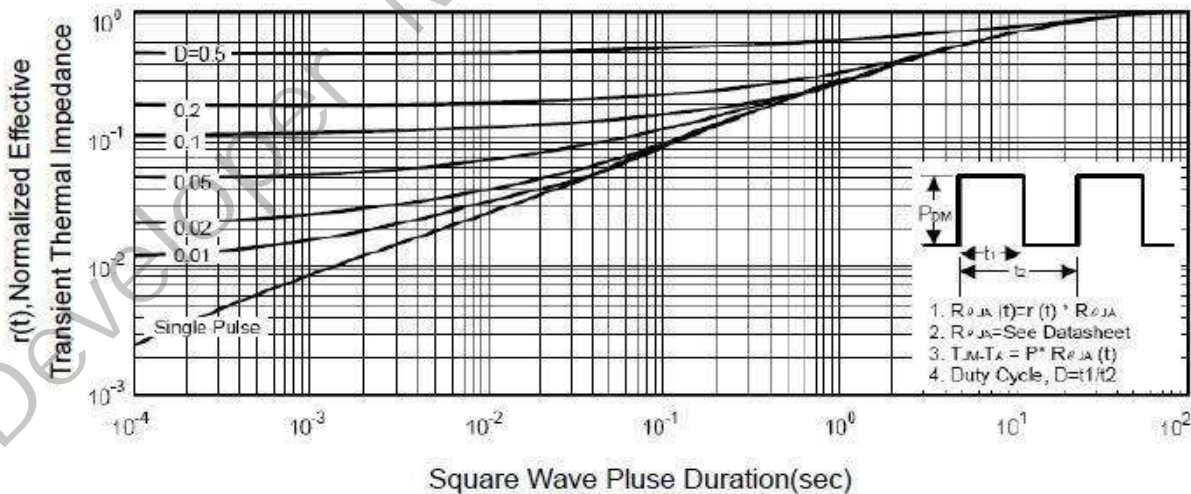


Figure 14 Normalized Maximum Transient Thermal Impedance

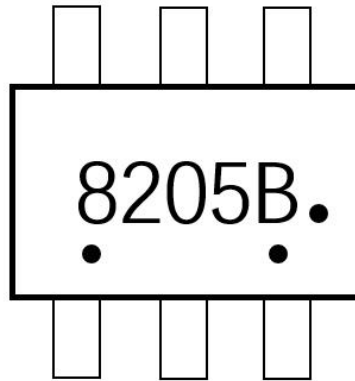


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MARKING DESCRIPTION

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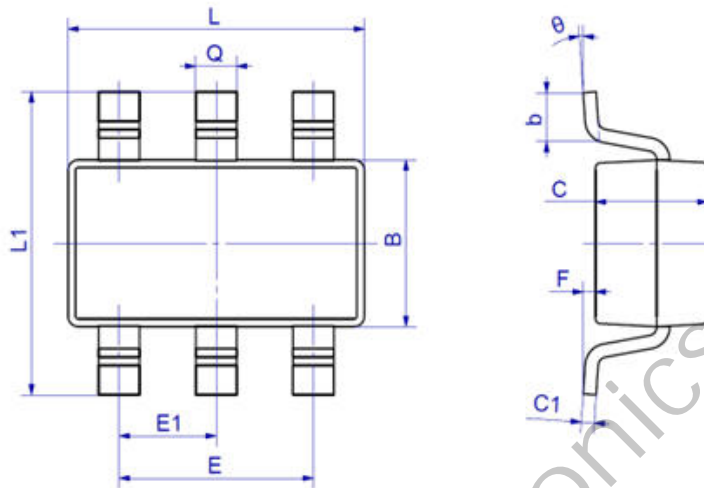


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Package Outline Dimensions

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Symbols	Dimension IN Millimeter	
	Min.	Max.
L	2.70	3.10
L1	2.50	3.10
B	1.50	1.70
b	0.35	0.55
C	0.90	1.30
C1	0.10	0.20
E	1.80	2.00
E1	0.85	1.05
F	0.00	0.15
Q	0.35	0.50
θ	0°	8°