DP8205B

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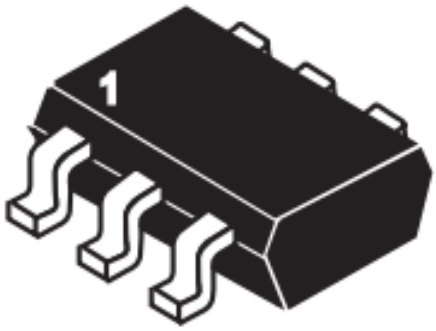
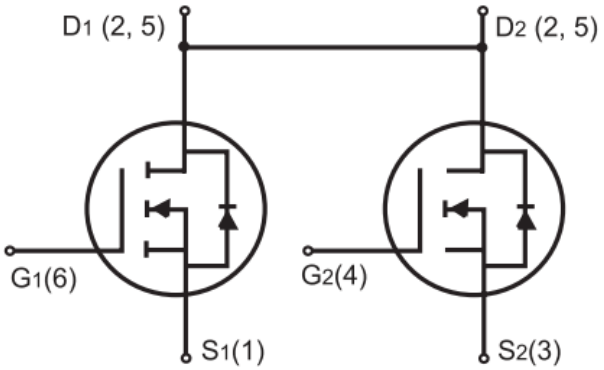
Dual N-Channel Enhancement Power MOSFET

Rev1.0

General Description	Product Summary	
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.	V_{DS}	20 V
	I_D (at V_{GS}=4.5V)	6.5A
	$R_{DS(ON)}$ (at V_{GS} = 4.5V)	< 22mΩ
	$R_{DS(ON)}$ (at V_{GS} = 2.5V)	< 27mΩ

SOT23-6





Absolute Maximum Ratings TA=25°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℃	I_D	6.5	A
Pulsed[b]	I_{DM}	25	A
Drain-Sourse 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	℃

Thermal Characteristic

Parameter	Symbol	Limit	Unit
Thermal Resistance,Junction-to-Ambient [a]	$R_{\theta JA}$	100	℃/W

Electrical Characteristics (TA=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ[c]	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	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}=±12V,V_{DS}=0V	-	-	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	0.7	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=4,5A	-	15	22	mΩ
		V_{GS}=2.5V, I_D=3.5A	-	19	27	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V,I_D=4.5A	-	10	-	S
Dynamic Characteristics						
Input Capacitance	C_{lss}	V_{DS}=10V, V_{GS}=0V, F=1.0MHz	-	900	-	pF
Output Capacitance	C_{oss}		-	220	-	pF
Reverse Transfer Capacitance	C_{rss}		-	100	-	pF
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V, I_D=1A V_{GS}=4.5V, R_{GEN}=6Ω , R_L=10Ω	-	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	-	12	15	nC
Gate-Source Charge	Q_{gs}		-	2.3	-	nC
Gate-Drain Charge	Q_{gd}		-	1	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V_{SD}	V_{GS}=0V,I_S=1.7A	-	0.75	1.2	V

Notes:

a. Surface Mounted on FR4 Board ,T<10 sec ;

b. Pulse Test: Pulse Width ≤ 300μ s, Duty Cycle ≤ 2%.

c. Guaranteed by Design, not subject to production testing.

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

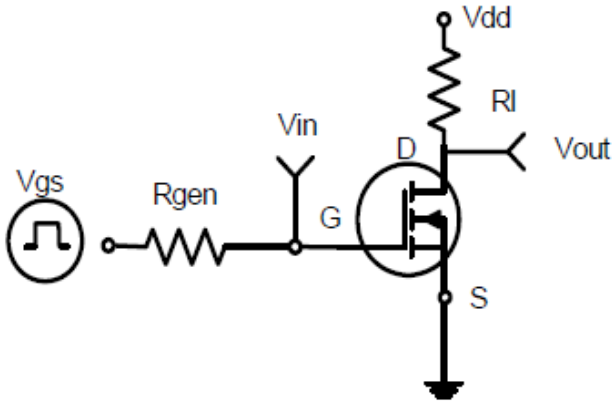


Figure 1:Switching Test Circuit

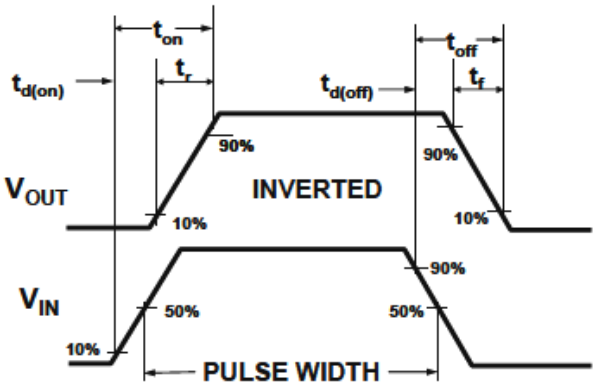


Figure 2:Switching Waveforms

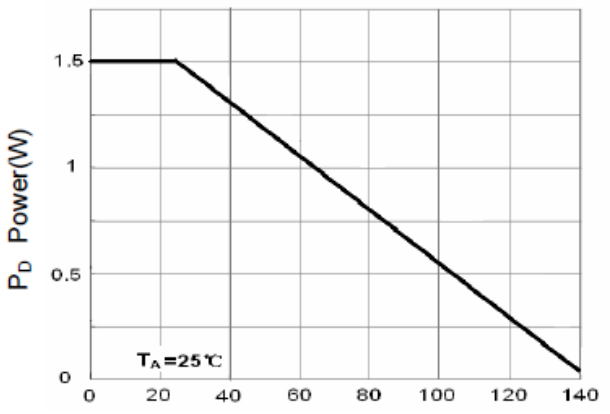


Figure 3 Power Dissipation

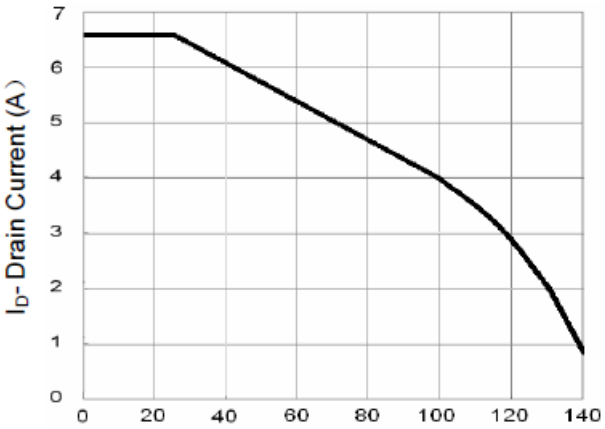


Figure 4 Drain Current

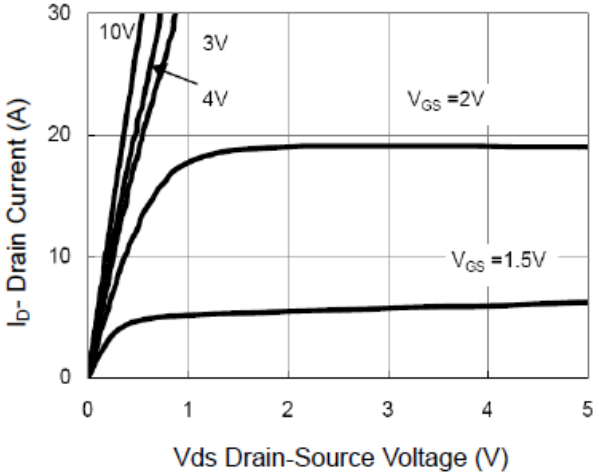


Figure 5 Output Characteristics

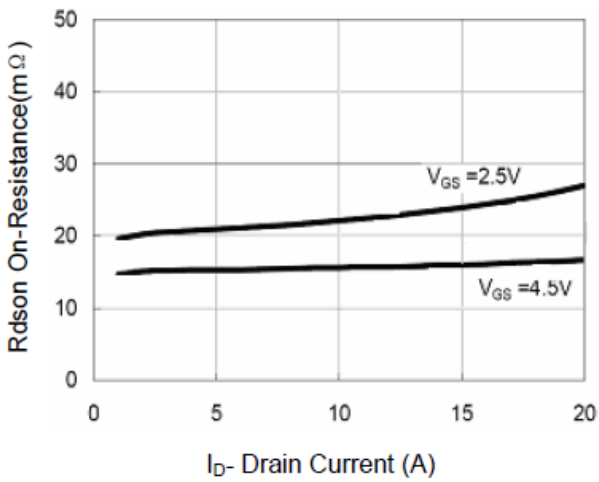


Figure 6 Drain-Source On-Resistance

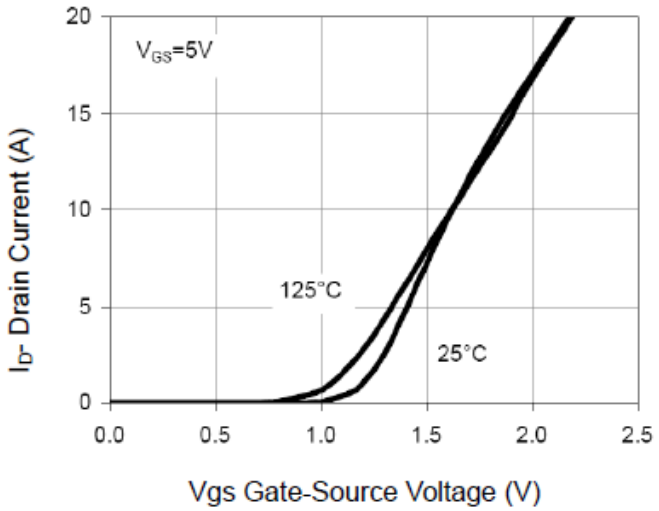


Figure 7 Transfer Characteristics

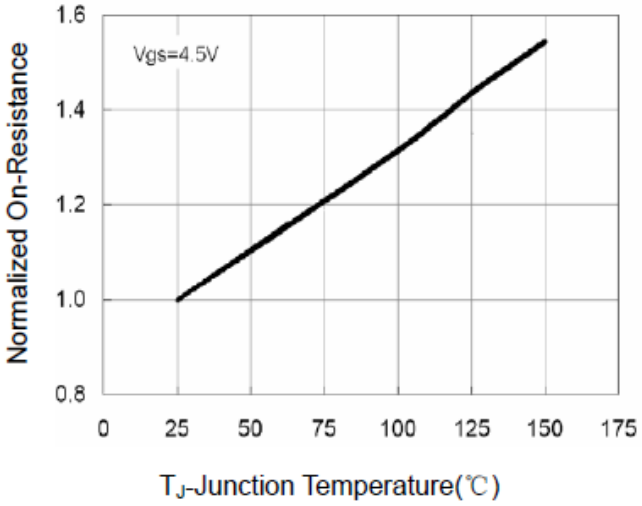


Figure 8 Drain-Source On-Resistance

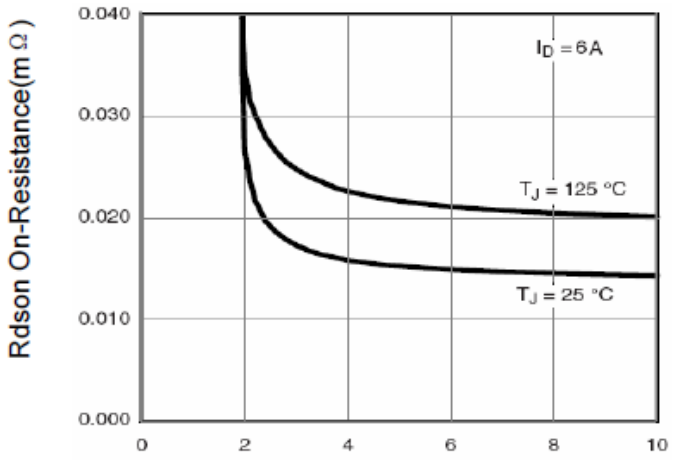


Figure 9 Rdson vs Vgs

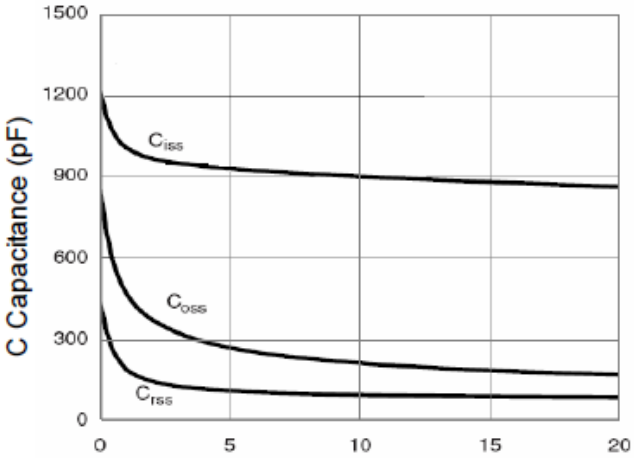


Figure 10 Capacitance vs Vds

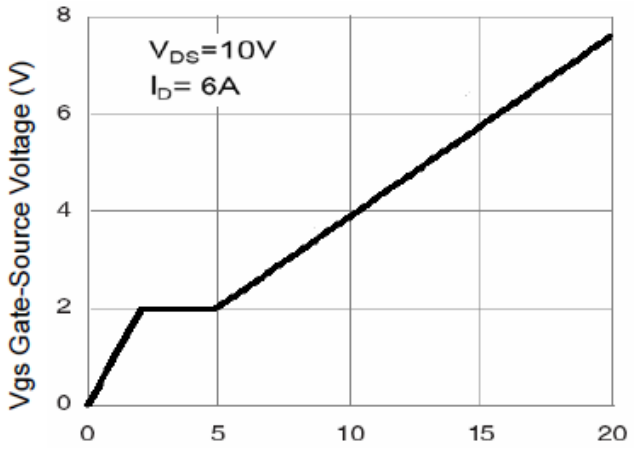


Figure 11 Gate Charge

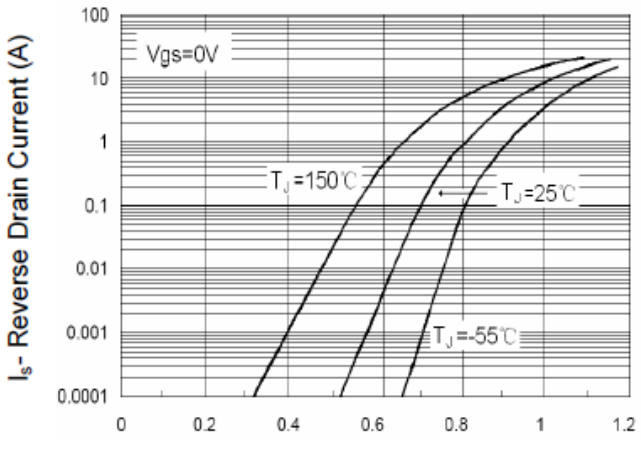


Figure 12 Source- Drain Diode Forward

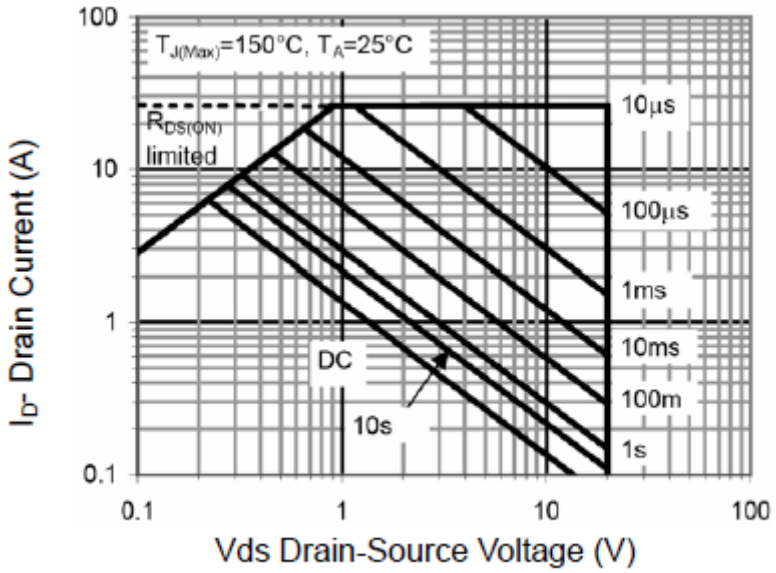


Figure 13 Safe Operation Area

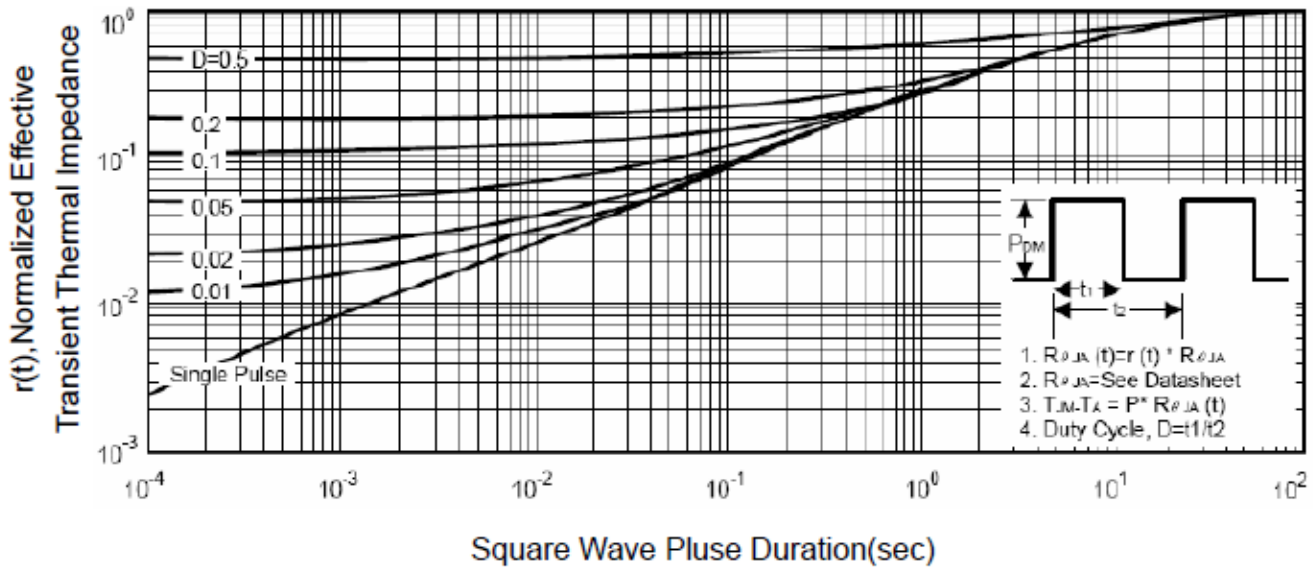
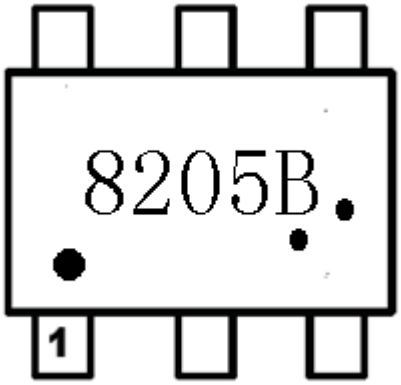
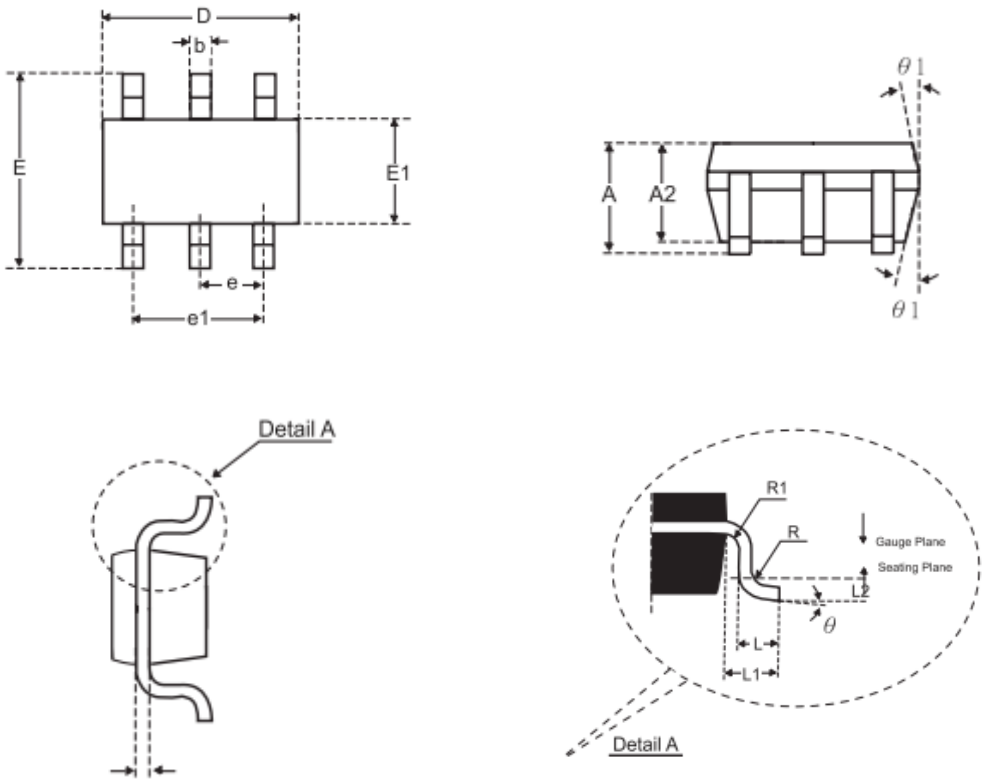


Figure 14 Normalized Maximum Transient Thermal Impedance

MARKING DESCRIPSION **SOT23-6**



Package Outline Dimensions SOT23-6



SYMBOLS	MILLIMETERS		
	Min.	Nom.	Max.
A	-	-	1.45
A2	0.90	0.15	1.30
b	0.30	-	0.50
c	0.08	-	0.22
D	2.70	2.90	3.10
E	2.50	2.80	3.10
E1	1.50	1.60	1.70
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.45	0.60
L1	0.60 BSC		
L2	0.20 BSC		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°	4°	8°
θ1	0°	10°	15°