

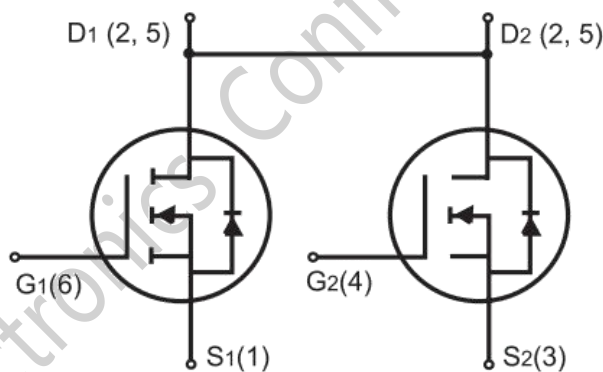
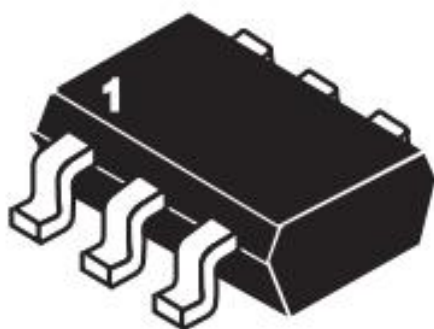
GENERAL DESCRIPTION

DP8205 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.

PRODUCT SUMMARY

V_{DS}	20 V
I_D (at $V_{GS}=4.5V$)	5.0A
$R_{DS(ON)}$ (at $V_{GS} = 4.5V$)	< 29m Ω
$R_{DS(ON)}$ (at $V_{GS} = 2.5V$)	< 34m Ω

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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	5	A
Pulsed ^b	I_{DM}	20	A
Drain-Source Diode Forward Current ^a	I_S	2.5	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
Thermal Resistance, Junction-to-Ambient ^a	$R_{\theta JA}$	100	$^{\circ}C/W$
Thermal Resistance, Junction to Lead	$R_{\theta JL}$	65	$^{\circ}C/W$

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 =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	14	20	29	mΩ
		V _{GS} =2.5V, I _D =3.5A	17	27	34	mΩ
Forward Transconductance	g _{FS}	V _{DS} =5V,I _D =7A	-	17.7	-	S
Dynamic Characteristics						
Input Capacitance	C _{Iss}	V _{DS} =8V, V _{GS} =0V, F=1.0MHz	-	802	-	pF
Output Capacitance	C _{Oss}		-	153	-	pF
Reverse Transfer Capacitance	C _{rSS}		-	122	-	pF
Switching Characteristics						
Turn-on Delay Time	t _{d(on)}	V _{DD} =10V, I _D =1A V _{GS} =4.5V, R _{GEN} =10Ω , R _L =10Ω	-	18	-	nS
Turn-on Rise Time	t _r		-	5	-	nS
Turn-Off Delay Time	t _{d(off)}		-	43.8	-	nS
Turn-Off Fall Time	t _f		-	20	-	nS
Total Gate Charge	Q _g	V _{DS} =10V, I _D =4A, V _{GS} =4.5V	-	10.5	-	nC
Gate-Source Charge	Q _{gs}		-	2	-	nC
Gate-Drain Charge	Q _{gd}		-	2.5	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =1.7A	-	-	1.2	V

Notes:

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

TYPICAL ELECTRICAL AND THERMAL CHARACTERISTICS

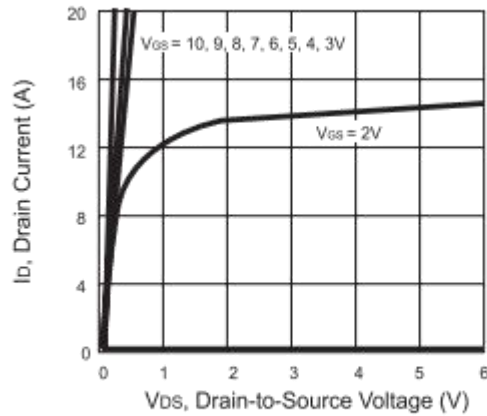


Figure 1. Output Characteristics

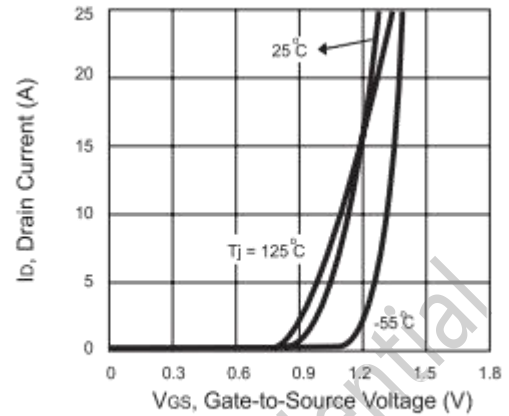


Figure 2. Transfer Characteristics

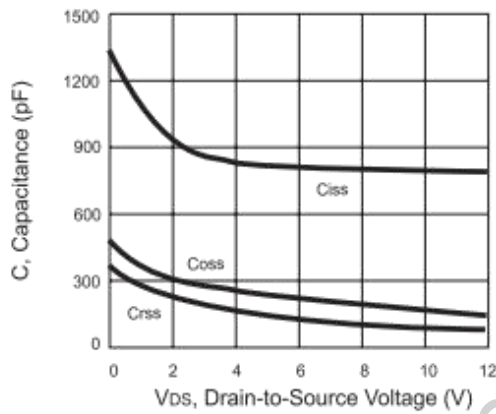


Figure 3. Capacitance

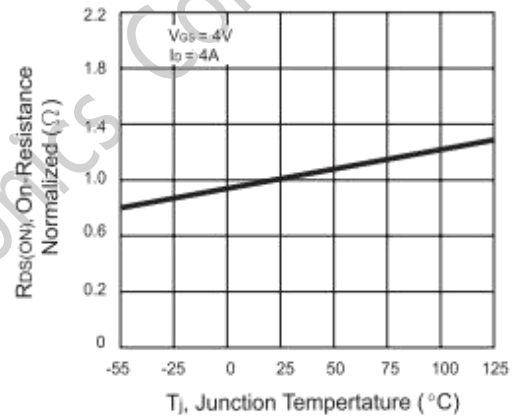


Figure 4. On-Resistance Variation with Temperature

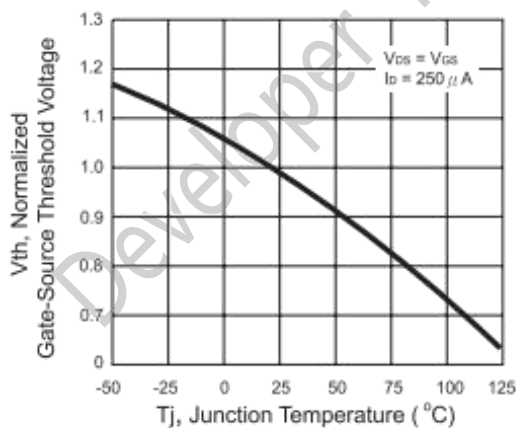


Figure 5. Gate Threshold Variation with Temperature

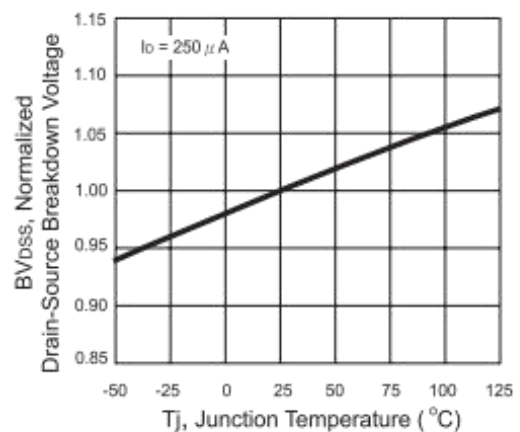


Figure 6. Breakdown Voltage Variation with Temperature

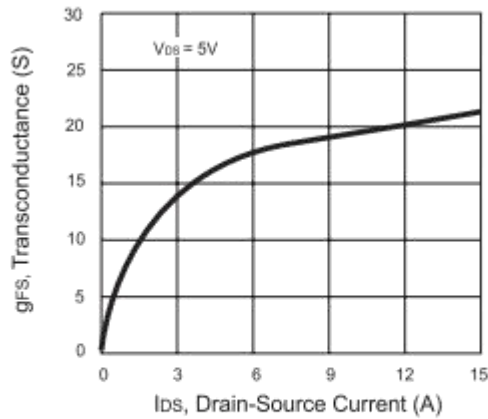


Figure 7. Transconductance Variation with Drain Current

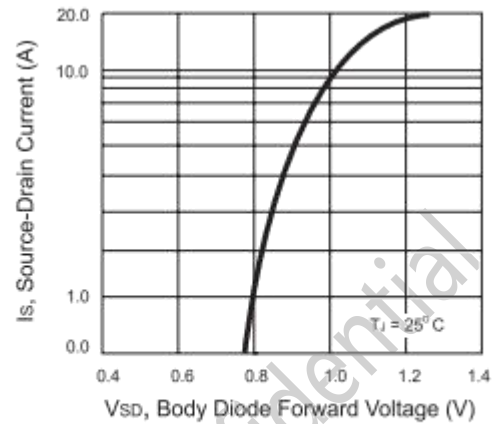


Figure 8. Body Diode Forward Voltage Variation with Source Current

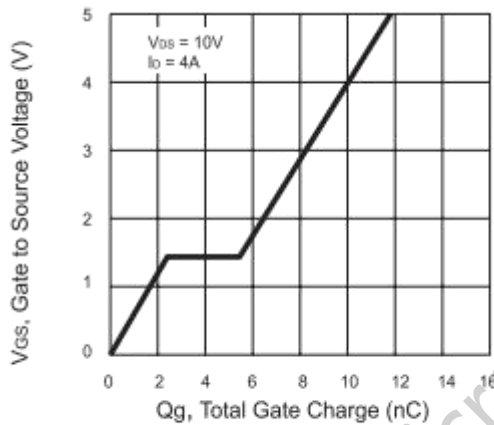


Figure 9. Gate Charge

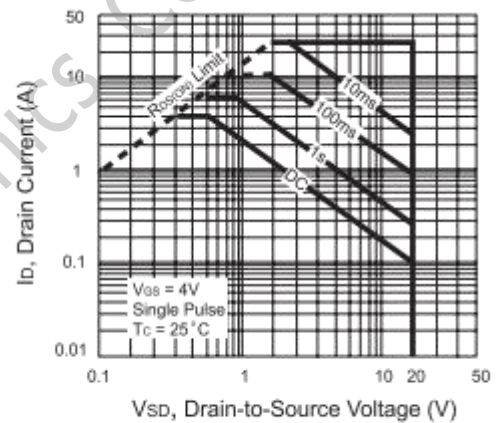


Figure 10. Maximum Safe Operating Area

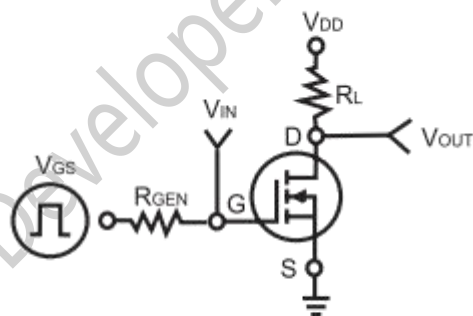


Figure 11. Switching Test Circuit

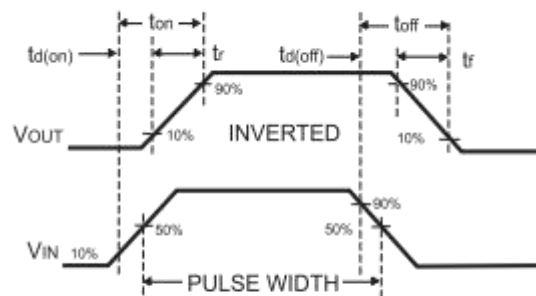


Figure 12. Switching Waveforms

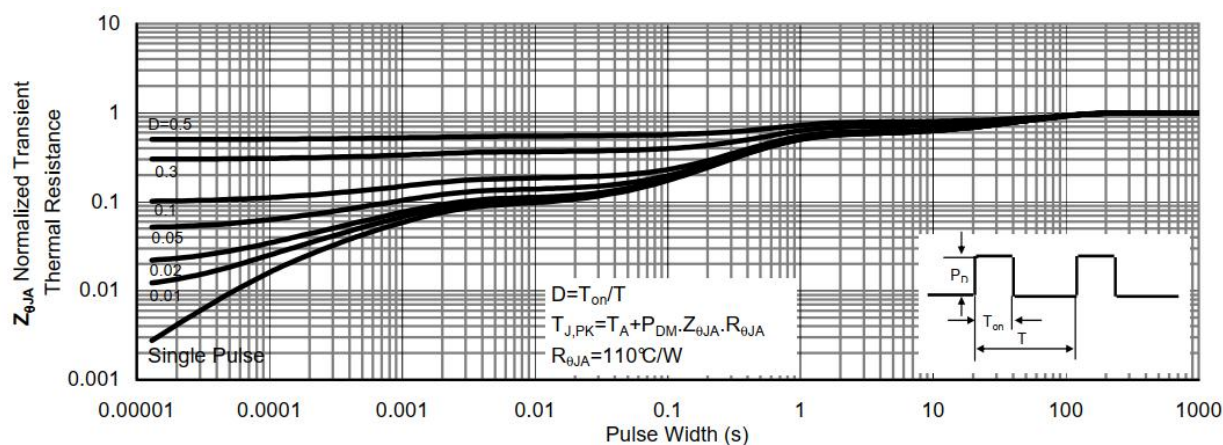
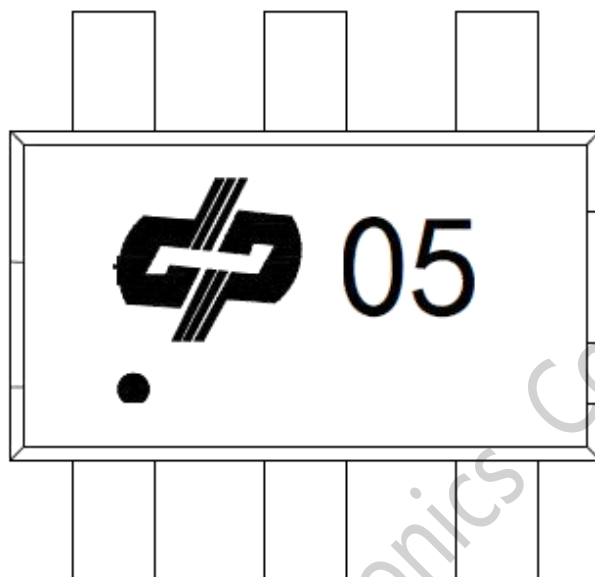


Figure 13. Normalized Maximum Transient Thermal Impedance

MARKING DESCRIPTION

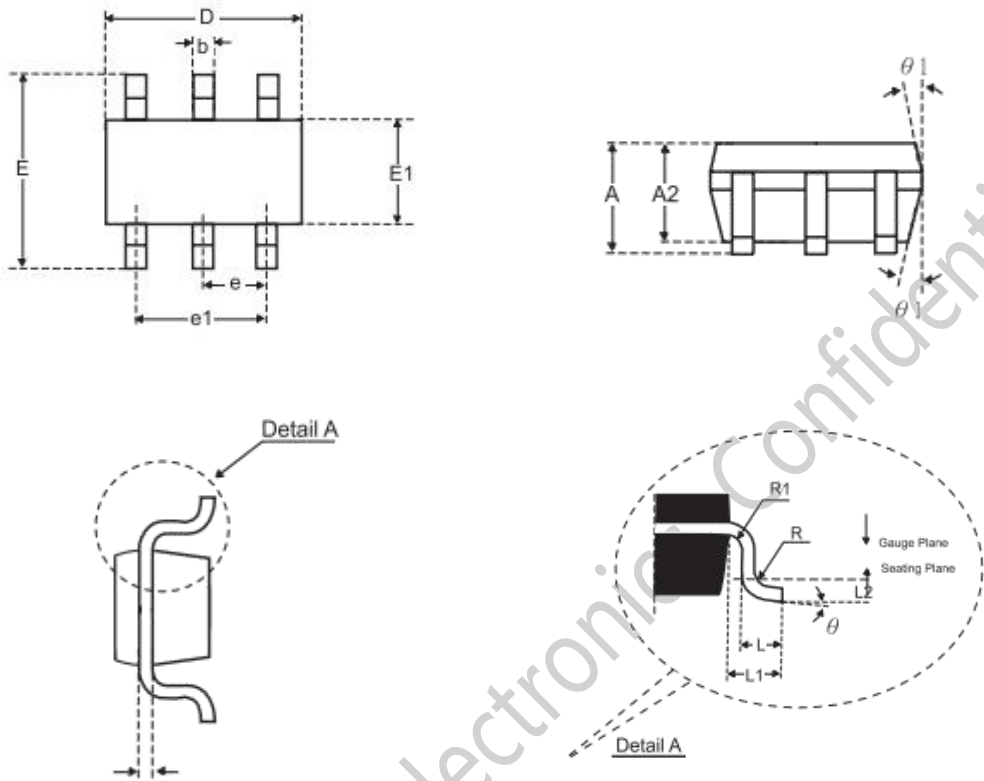
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PACKAGE OUTLINE DIMENSIONS

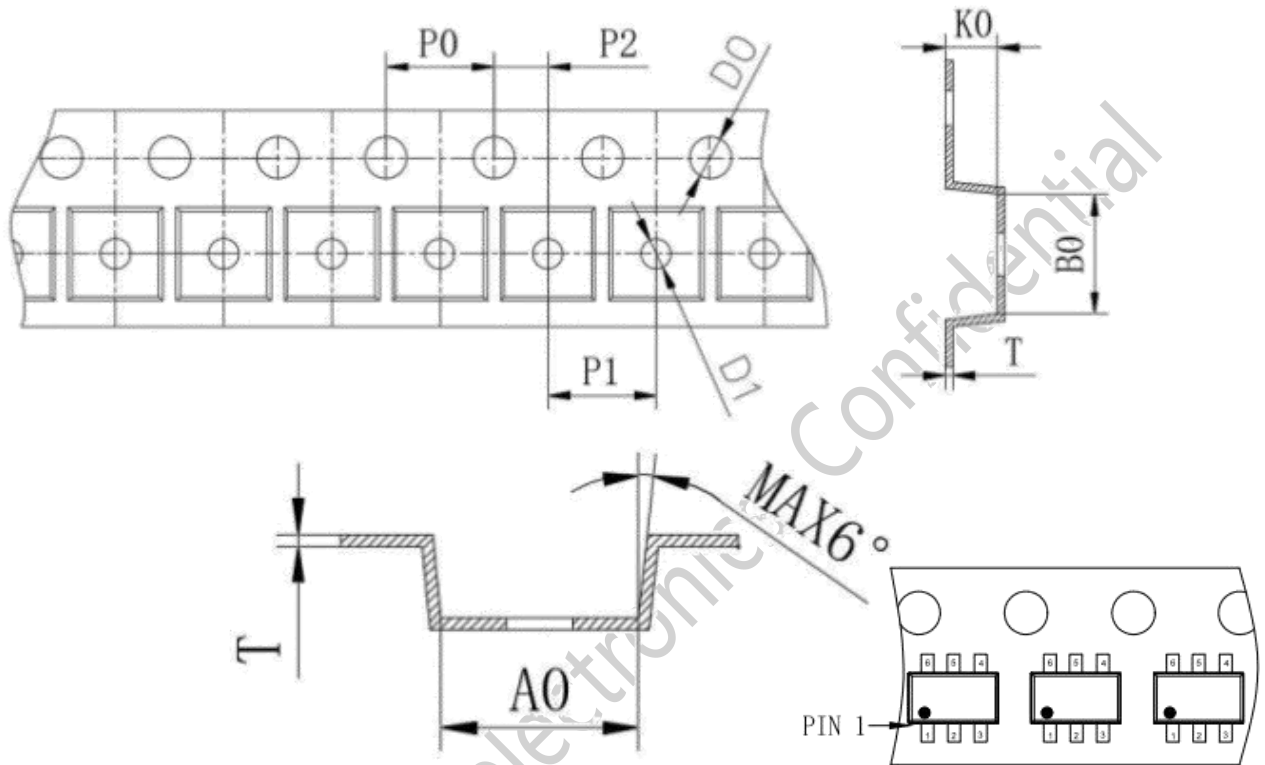
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SYMBOLS	MILLIMETERS		
	Min.	Nom.	Max.
A	-	-	1.45
A2	0.90	0.15	1.30
b	0.30	-	0.50
c	0.08	-	0.22
D	2.70	2.90	3.10
E	2.50	2.80	3.10
E1	1.50	1.60	1.70
e	0.95 BSC		
e1	1.90 BSC		
L	0.30	0.45	0.60
L1	0.60 BSC		
L2	0.20 BSC		
R	0.10	-	-
R1	0.10	-	0.25
θ	0°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

TAPE SIZE

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SYMBOL	A0	B0	K0	P0	P1	P2
SPEC	3.23 ± 0.10	3.17 ± 0.10	1.37 ± 0.10	4.00 ± 0.10	4.00 ± 0.10	2.00 ± 0.05
SYMBOL	T	E	F	D0	D1	W
SPEC	0.20 ± 0.05	1.75 ± 0.10	3.50 ± 0.05	1.55 ± 0.05	1.10 ± 0.10	$8.00^{+0.20}_{-0.10}$

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