WANSEMI
万芯半导体

WP8205KT8

Enhancement Mode N-Channel Power MOSFET

TSSOP8/NMOS/20V/±12V/0.8V/5A/24mΩ

Rev0.5

20V, 24mΩ, 5A, N-Channel Enhancement Mode Power MOSFET

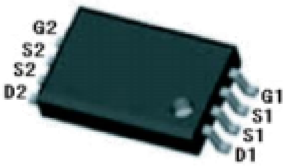
1.Features

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

V_{DS} Typ	$R_{DS(on)}$ Typ.	I_D Max.
20V	24mΩ @ 4.5V	5A
	34mΩ @ 2.5V	

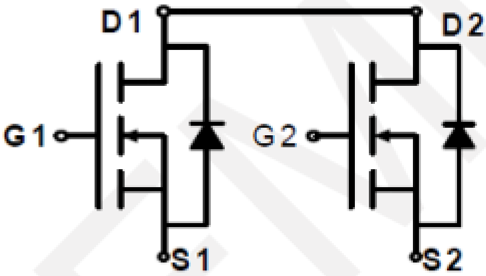
2.Applications

- Battery protection
- Load Switch
- Power management



TSSOP8

Pin Description



Schematic Diagram

3.Package Marking and Ordering Information

Part no.	Marking	Package	PCS/Tube	PCS/CTN.
WP8205KT8	8205A	TSSOP8	5,000	80,000

4.Absolute Max Ratings at Ta=25℃ (Note1)

Parameter	Symbol	Maximum	Units
Drain to Source Voltage	V_{DSS}	20	V
Gate to Source Voltage	V_{GSS}	±12	V
Drain Current- Continuous	I_D	5	A
Drain Current (Pulse)	I_{DM}	20	A
Maximum Power Dissipation	P_D	1.7	W
Operating Junction and Storage Temperature Range	T_j, T_{stg}	-55 to +150	℃

Note 1: Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

5.Thermal Characteristic

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction to Ambient (Note 2)	$R_{\theta JA}$	75	℃/W

Note 2 : When mounted on 1 inch square copper board t ≤ 10sec The value in any given application depends on the user's specific board design.

6.Electrical Characteristics at Ta=25℃ (Note 3)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Units
Drain to Source Breakdown Voltage	$V_{(BR)DSS}$	I_D = 250μA, V_{GS} = 0V	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
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS} , I_{DS} =250μA	0.5	0.8	1.0	V
Drain to Source On-State Resistance	$R_{DS(on)}$	I_D = 5A, V_{GS} = 4.5V		24	30	mΩ
		I_D = 2A, V_{GS} = 2.5V		34	45	mΩ
Diode Forward Voltage	V_{SD}	I_S = 5A, V_{GS} = 0			1.0	V
Input Capacitance	C_{iss}	V_{GS} =0V, V_{DS} =10V, Frequency=1.0MHz		455		pF
Output Capacitance	C_{oss}			64		pF
Reverse Transfer Capacitance	C_{rss}			55		pF
Turn-ON Delay Time	$t_{d(on)}$	V_{DS} = 10V, V_{GS} = 4.5V, R_{GEN} = 3Ω , I_D=2A		4		ns
Turn-ON Rise Time	t_r			10		ns
Turn-OFF Delay Time	$t_{d(off)}$			65		ns
Turn-ON Fall Time	t_f			33		ns
Total Gate Charge	Q_g	V_{DS} = 10V, V_{GS} =0 to 4.5V, I_D = 2A		6		nC
Gate-Source Charge	Q_{gs}			1		nC
Gate-Drain Charge	Q_{gd}			1.5		nC

Note 3 : Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.

7.Typical electrical and thermal characteristics

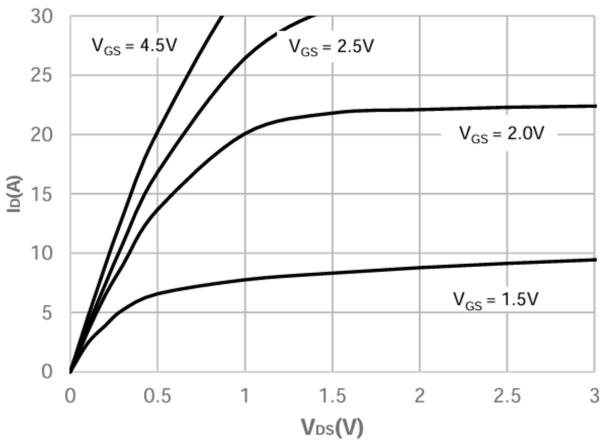


Figure 1 On-Region Characteristics

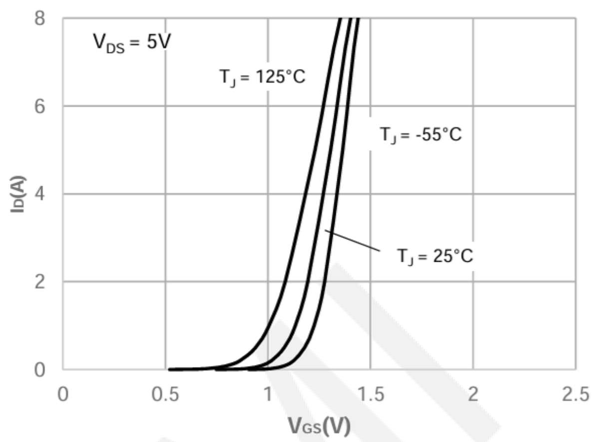


Figure 2 Transfer Characteristics

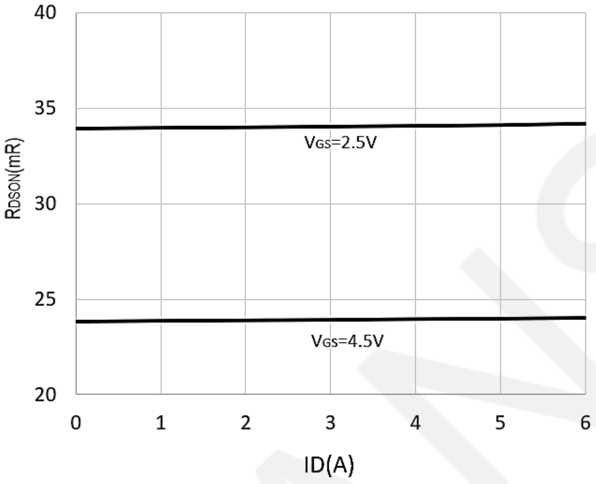


Figure 3 On-Resistance vs. Drain Current and Gate Voltage

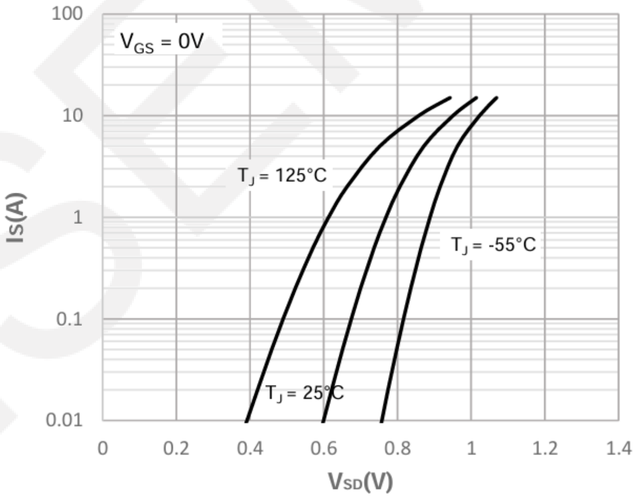


Figure 4 Body Diode Characteristics

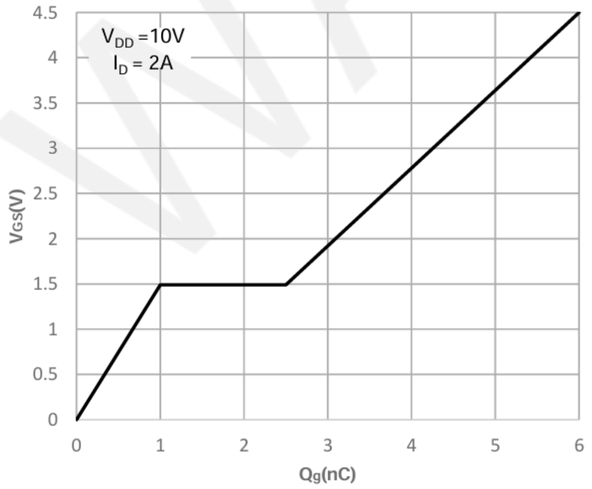


Figure 5 Gate Charge Characteristics

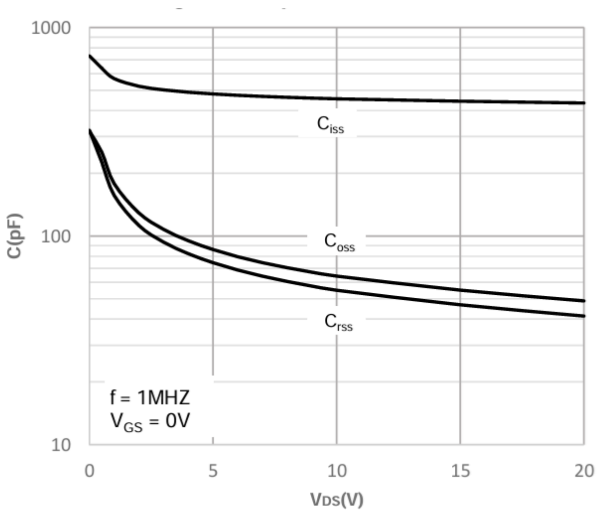


Figure 6 Capacitance Characteristics

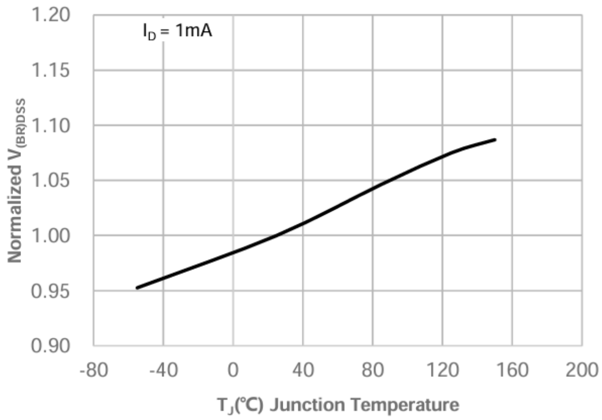


Figure 7 Normalized Breakdown voltage vs. Junction Temperature

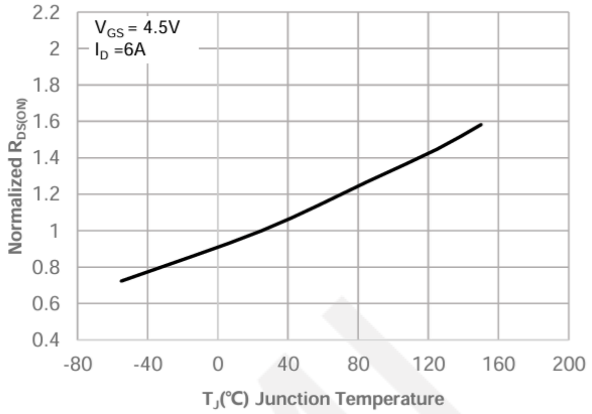


Figure 8 Normalized on Resistance vs. Junction Temperature

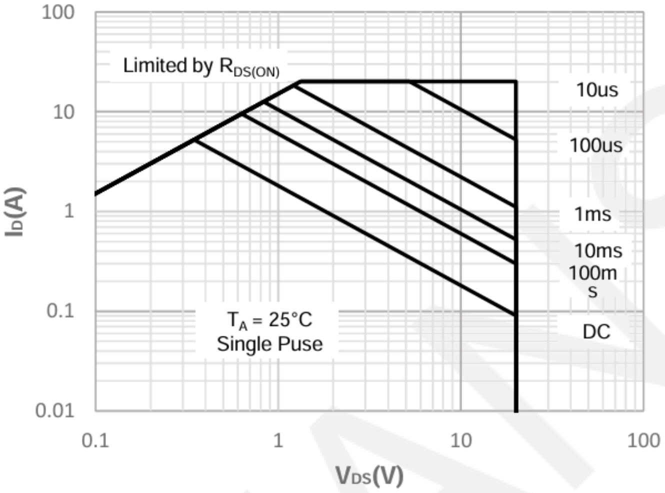


Figure 9 Maximum Forward Biased Safe Operating Area

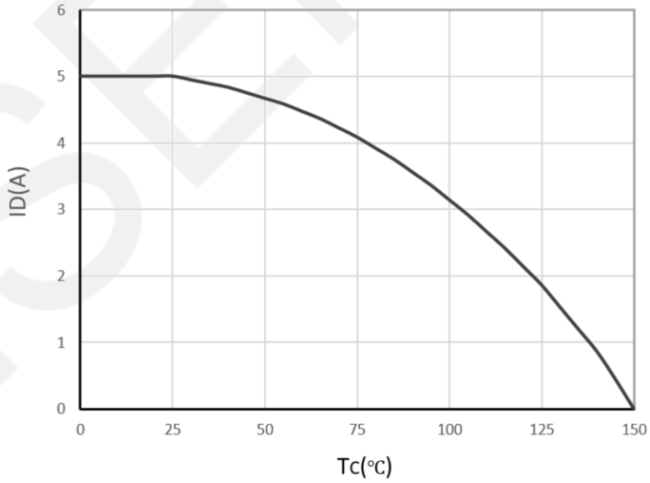


Figure 10 Maximum Continuous Drian Current vs. Ambient Temperature

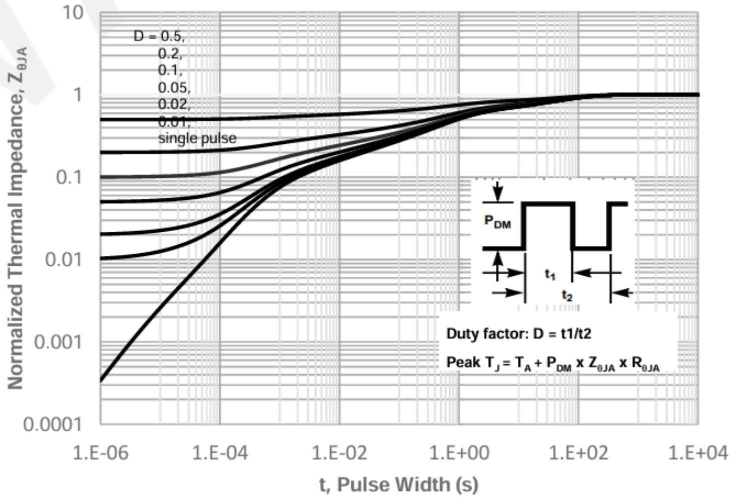
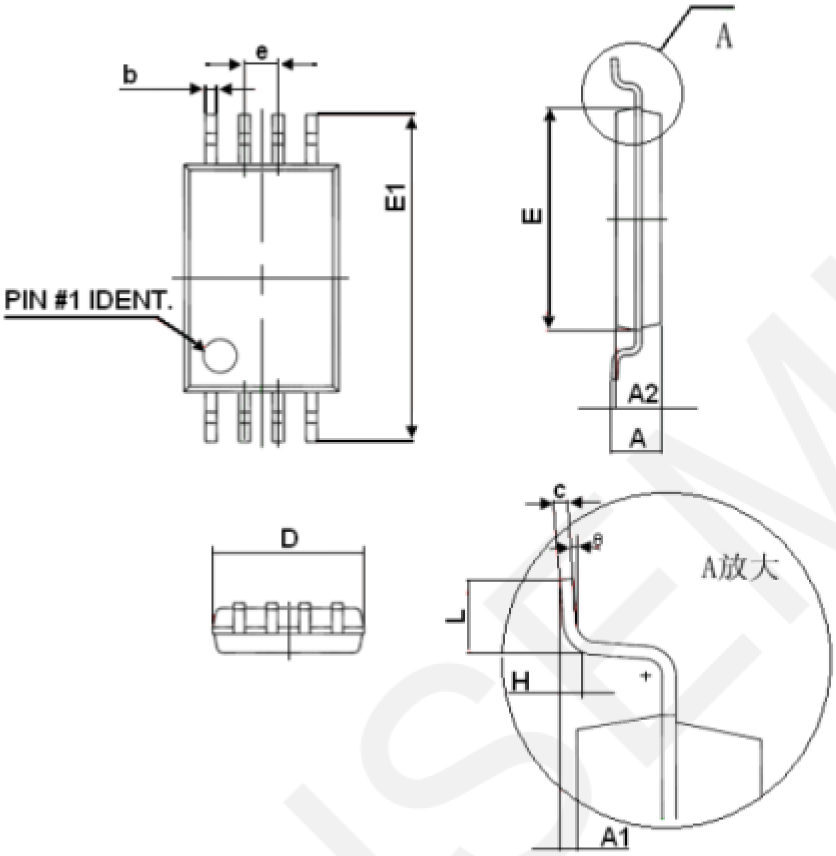


Figure 1 1 Normalized Maximum Transient Thermal Impedance

8.Package Dimensions



Symbol	Dimensions In Millimeters	
	Min	Max
D	2.900	3.100
E	4.300	4.500
b	0.190	0.300
c	0.090	0.200
E1	6.250	6.550
A		1.100
A2	0.800	1.000
A1	0.020	0.150
e	0.65(BSC)	
L	0.500	0.700
H	0.25(TYP)	
Θ	1°	7°

9.Important Notice

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