

N-Channel Power MOSFET

General Description

The PA8205 is a dual N-channel MOS Field Effect Transistor which uses advanced trench technology to provide excellent $R_{DS(on)}$, low gate charge and operation with low gate voltages. This device is suitable for use as a battery protection or in other switching application. PA8205 is packaged in a small SOT23-6 package.

Features

- $V_{DS(min)} = 19.5V$
- $I_D(max) = 4.5A$
- Low on-state resistance
 $R_{DS(on)} = 19m\Omega$ TYP. ($V_{GS} = 4.5V$)
 $R_{DS(on)} = 23m\Omega$ TYP. ($V_{GS} = 2.5V$)
- Lead free product is acquired
- Surface Mount Package

Applications

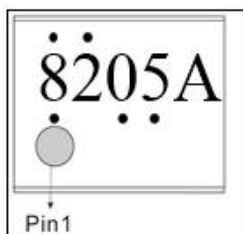
- Battery protection
- Battery Powered Systems
- Power Management in Notebook Computer
- Portable Equipment

ORDERING INFORMATION

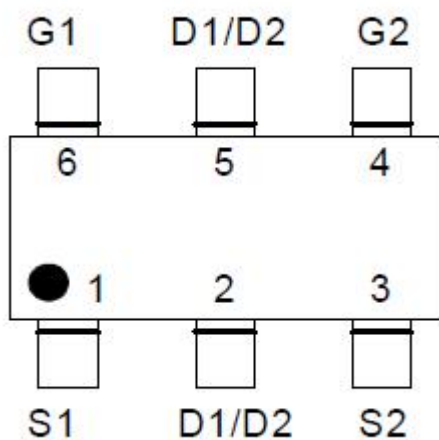
[Table-1] Ordering Information

DEVICE	PACKAGE	PIN COUNT	MARKING
PA8205	SOT23-6	6	8205A

Marking Description

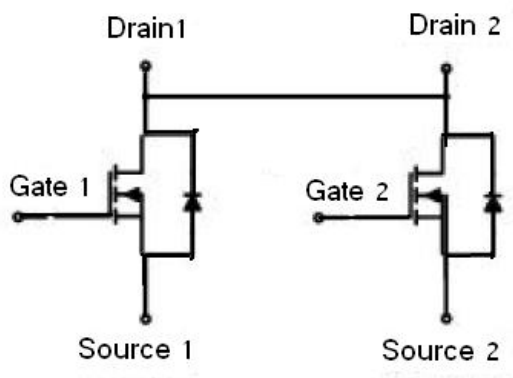


PIN CONFIGURATIONS



SOT23-6

EQUIVALENT CIRCUIT



ABSOLUTE MAXIMUM RATINGS

Drain-Source Voltage V_{DS}	19.5V	Storage Temperature Range T_{STG}	-55°C to 150°C
Gate-Source Voltage V_{GS}	±12V	Maximum Junction Temperature T_J	150°C
Drain Current-Continuous I_D	4.5A	Maximum Power Dissipation P_D	
Drain Current-Pulsed $I_{DM}^{(2)}$	25A	SOT23-6 (Thermal Resistance $\theta_{JA}=100^\circ\text{C/W}$) ..	1.25W



Note: (1) Stresses above those listed parameter may cause permanent damage to the device. These are stress ratings only and operation of the devices at these or any other conditions above this indicated in the operationa section of this specification is not implied. Exposure to these listed ratings for extended periods may affect the reliability.

(2) Relative Rating: Pulse width limited by maximum junction temperature.

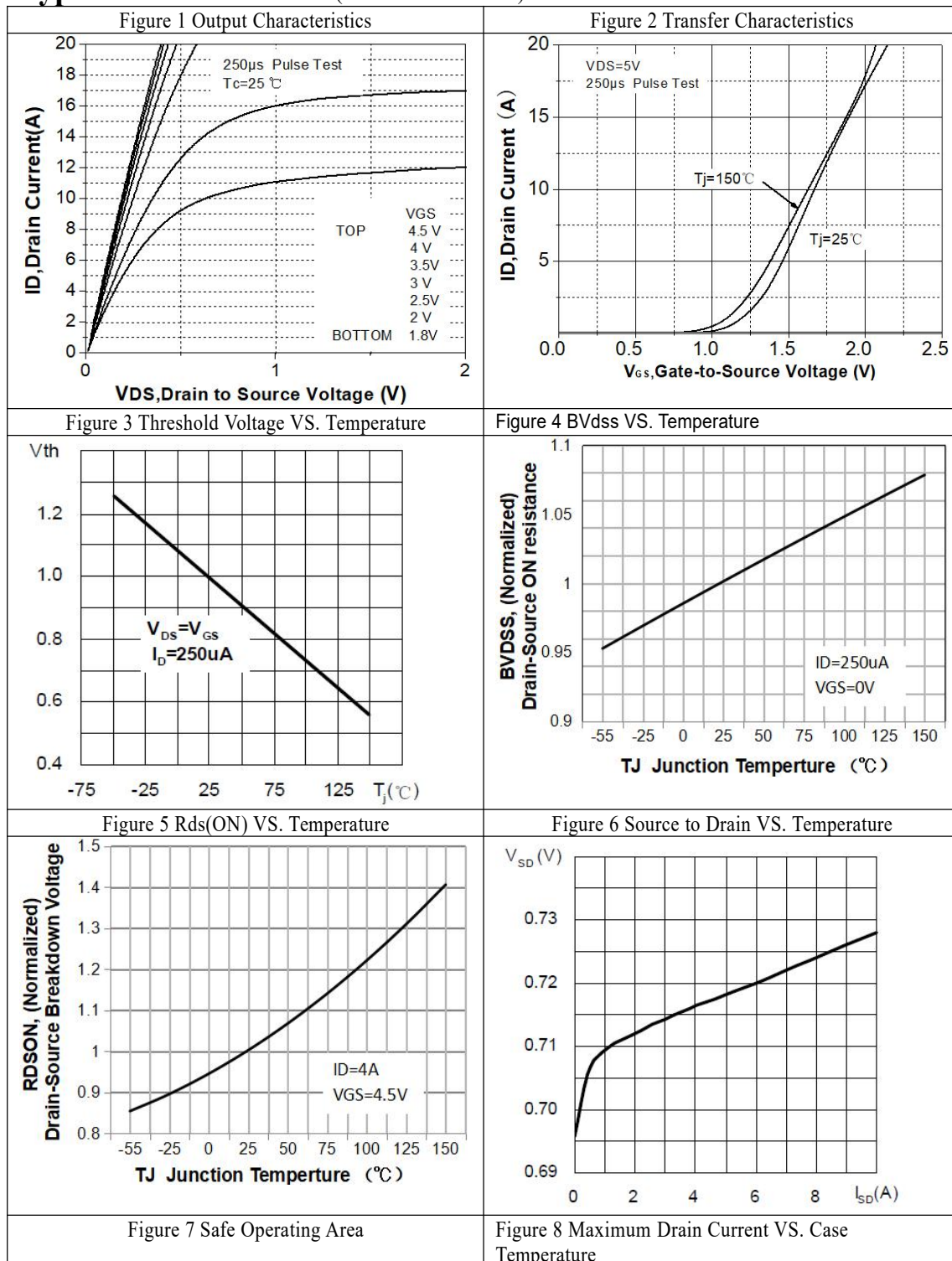
Electrical Characteristics (Ta=25°C)

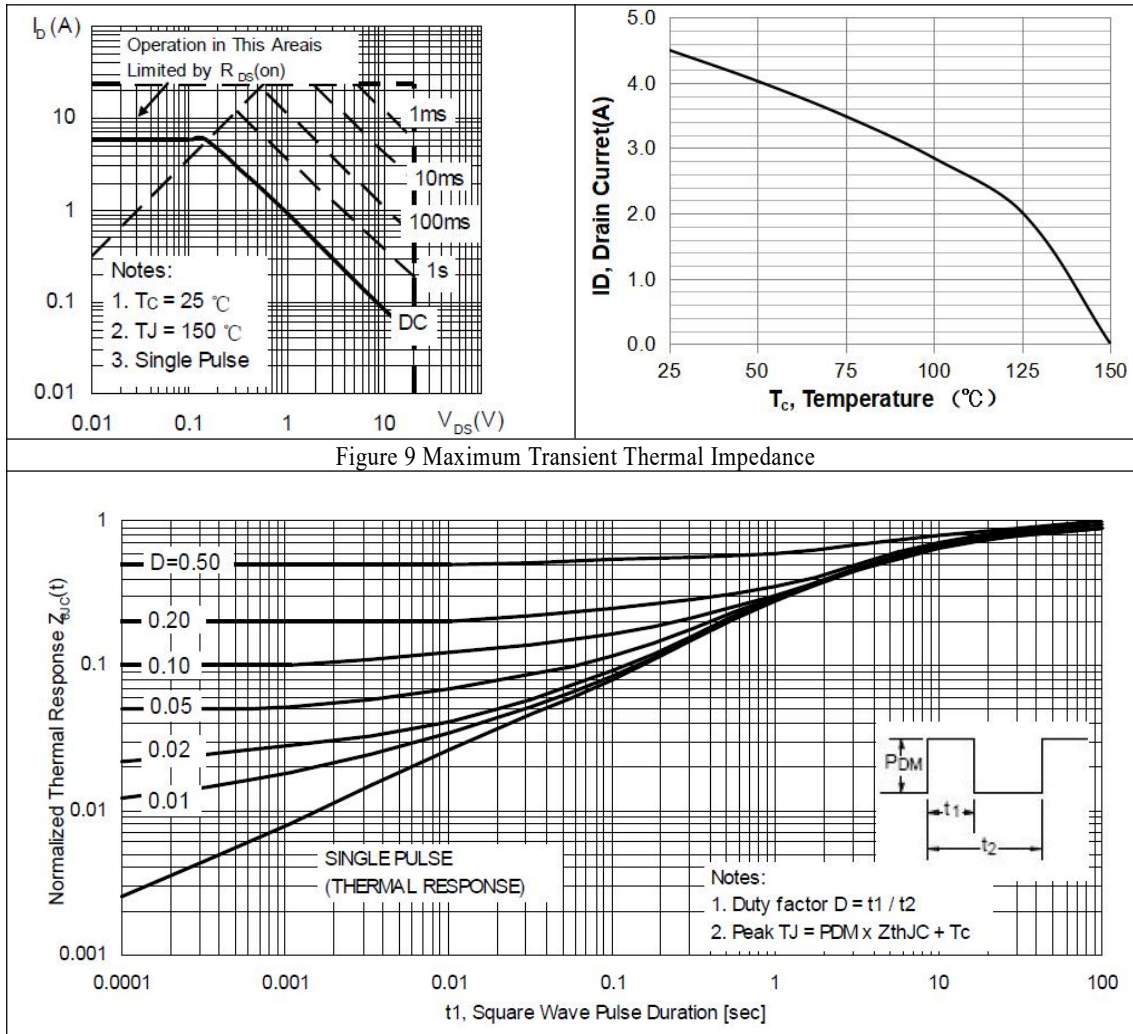
PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source breakdown voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	19.5			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=19.5V, V_{GS}=0V$			1	μA
Gate-body leakage current	I_{GSS}	$V_{GS}=\pm 12V, V_{DS}=0V$			± 100	nA
ON CHARACTERISTICS⁽¹⁾						
Gate threshold voltage	$V_{GS(TH)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.55	0.7	0.95	V
Drain-source on-state resistance	$R_{DS(ON)}$	$V_{GS}=4.5V, I_D=3A$		19	23	m Ω
		$V_{GS}=2.5V, I_D=2A$		23	30	m Ω
DYNAMIC CHARACTERISTICS⁽²⁾						
Input capacitance	C_{ISS}	$V_{DS}=10V, V_{GS}=0V, F=1.0MHz$		465		PF
Output capacitance	C_{OSS}			99		PF
Reverse transfer capacitance	C_{RSS}			76		PF
SWITCHING CHARACTERISTICS⁽²⁾						
Turn-on delay time	$t_{d(ON)}$	$V_{DD}=10V, I_D=1A, V_{GS}=4.5V, R_{GEN}=10\Omega$		8		nS
Turn-on rise time	t_r			17		nS
Turn-off delay time	$t_{d(OFF)}$			19		nS
Turn-off fall time	t_f			12		nS
Total gate charge	Q_g	$V_{DS}=10V, I_D=4A, V_{GS}=4.5V$		6.1		nC
Gate-source charge	Q_{gs}			0.9		nC
Gate-drain charge	Q_{gd}			1.8		nC
Drain-source diode characteristics						
Diode forward voltage ⁽¹⁾	V_{SD}	$V_{GS}=0V, I_S=2.8A$		0.7	1.2	V
Diode forward current ⁽³⁾	I_S				4.5	A



Note: (1) Pulse Test: pulse width $\leq 300\mu s$, duty cycle $\leq 2\%$.
 (2) Guaranteed by design, not subject to production.
 (3) Surface mounted on FR4 board, $t \leq 10sec$.

Typical characteristics (25°C unless noted)







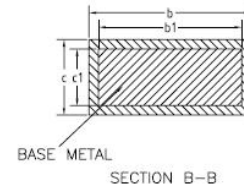
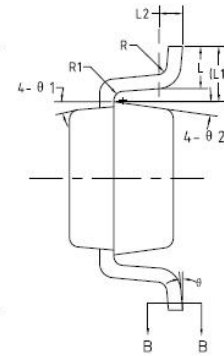
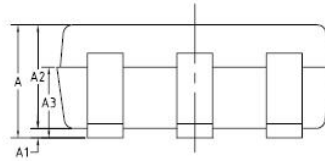
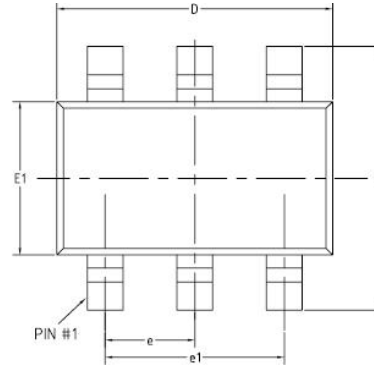
PA8205

Package Dimensions:

SOT23-6

COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	—	—	1.45
A1	0	—	0.15
A2	0.90	1.15	1.30
A3	0.60	0.65	0.70
b	0.39	—	0.49
b1	0.35	0.40	0.45
c	0.08	—	0.22
c1	0.08	0.13	0.20
D	2.80	2.90	3.00
E	2.60	2.80	3.00
E1	1.50	1.60	1.70
e	0.85	0.95	1.05
e1	1.80	1.90	2.00
L	0.35	0.45	0.60
L1	0.60REF		
L2	0.25BSC		
R	0.10	—	—
R1	0.10	—	0.25
θ	0°	—	8°
θ 1	7°	9°	11°
θ 2	8°	10°	12°



NOTES:

ALL DIMENSIONS REFER TO JEDEC STANDARD MO-178 C
DO NOT INCLUDE MOLD FLASH OR PROTRUSIONS.



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