ATM8205DNSG

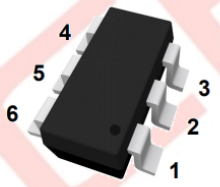
Dual N-Channel Enhancement Mode Power MOSFET

Drain-Source Voltage:20V Continuous Drain Current:5A

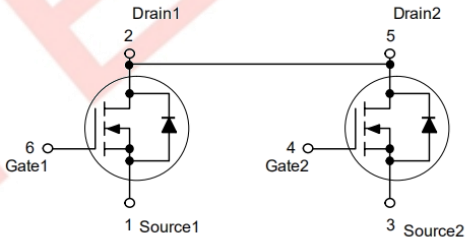
Descriptions

The ATM8205DNSG 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.

SOT-23-6



Schematic Diagram



Features

- V_{DS}=20V,I_D=5A
  Typ.$R_{DS(ON)}$= 20mΩ @ V_{GS}=4.5V
  Typ.$R_{DS(ON)}$= 25mΩ @ V_{GS}=2.5V
- High power and current handing capability
- Lead free product is acquired
- Surface mount package

Applications

- Battery protection
- Load switch
- Power management

Absolute Maximum Ratings (Ta=25℃ unless otherwise specified)

Parameter	Symbol	Limit	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±12	V
Drain Current-Continuous	I_D	5	A
Drain Current-Pulsed	I_{DM}	25	A
Maximum Power Dissipation	P_D	1.25	W
Operating Junction and Storage Temperature Range	T_J,T_{STG}	150, -55 ~ +150	℃
Thermal Resistance，Junction-to-Ambient	$R_{\theta JA}$	100	℃/W

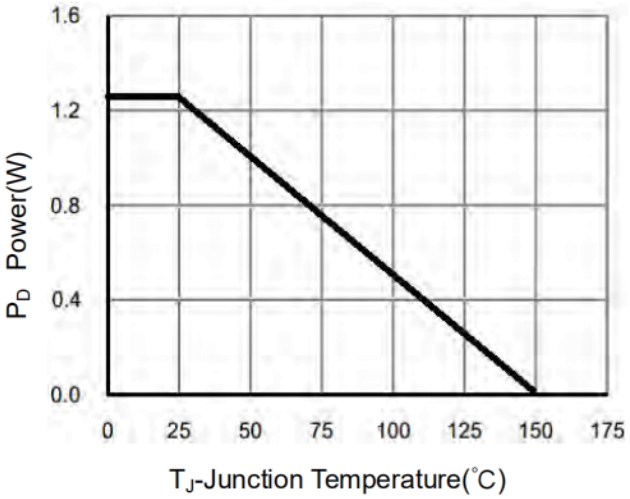
Electrical Characteristics(Ta=25℃ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Parameters						
Drain-Source breakdown voltage	BV_{DSS}	I_D=250uA,V_{GS}=0V	20	-	-	V
Zero Gate voltage drain current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-	-	1	uA
Gate-Body leakage current	I_{GSS}	V_{DS}=0V,V_{GS}=±12V	-	-	±100	nA
Gate Threshold voltage	$V_{GS(th)}$	V_{GS}=V_{DS}，I_D=250uA	0.5	0.7	1.2	V
Static Drain-source on-resistance	$R_{DS(on)}$	V_{GS}=2.5V，I_D=4A	-	25	32	mΩ
		V_{GS}=4.5V，I_D=5A	-	20	25	mΩ
Forward Transconductance	g_{FS}	V_{DS}=5V，I_D=5A	-	10	-	s
Dynamic Parameters						
Input Capacitance	Ciss	V_{GS}=0V,V_{DS}=10V,f=1MHZ	-	550	-	pF
Output capacitance	Coss		-	125	-	pF
Reverse transfer capacitance	Crss		-	64	-	pF
Switching Parameters						
Total Gate charge	Qg	V_{GS}=4.5V,V_{DS}=10V,I_D=5A	-	9.5	-	nC
Gate Source charge	Qgs		-	2.1	-	nC
Gate Drain charge	Qgd		-	1.4	-	nC
Turn-on delaytime	$t_{D(on)}$	V_{GS}=4V,V_{DD}=10V,I_D=5A, R_{GEN}=10Ω	-	9	-	ns
Turn-on rise time	t_r		-	10	-	ns
Turn-off delaytime	$t_{D(off)}$		-	32	-	ns
Turn-off fall time	t_f		-	24	-	ns
Source-Drain diode parameters						
Body diode forward voltage	V_{SD}	I_S=5A，V_{GS}=0V	-	0.8	1.2	V
Body diode continuous source current	I_S		-	-	5	A

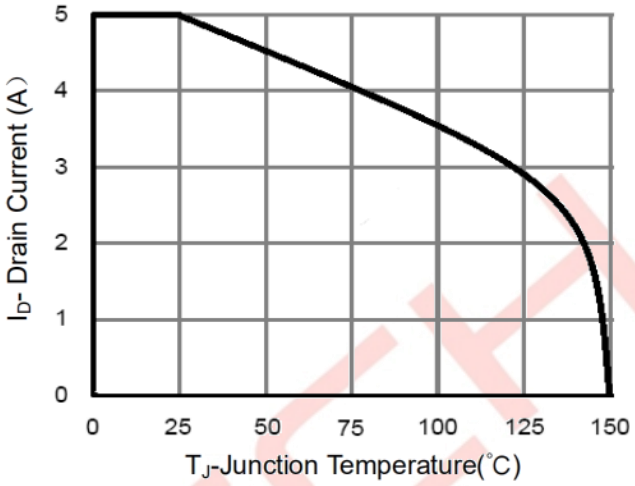
Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t ≤ 10 sec.
3. Pulse Test: Pulse Width ≤ 300μs, Duty Cycle ≤ 2%.

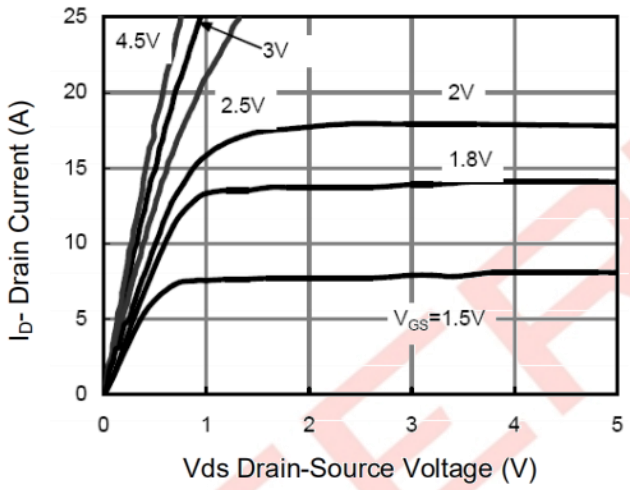
Typical Characteristics Curves



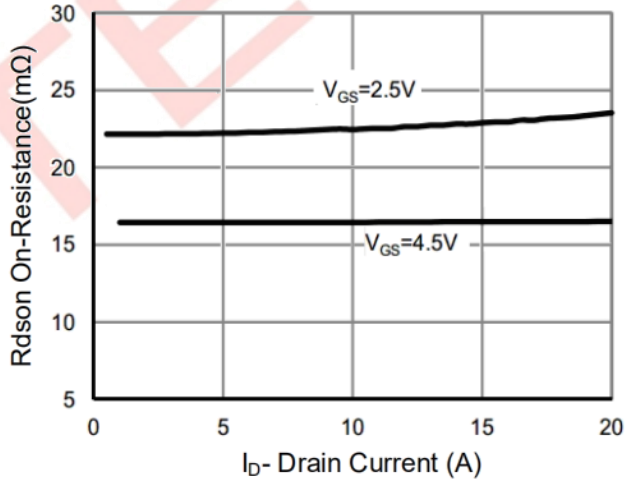
Power Dissipation



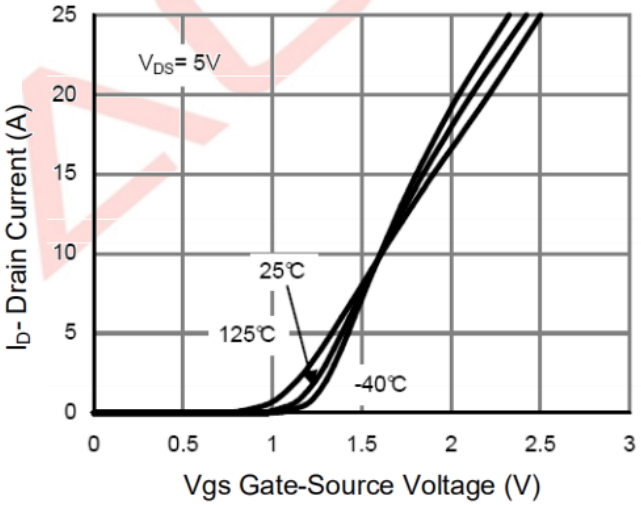
Drain Current



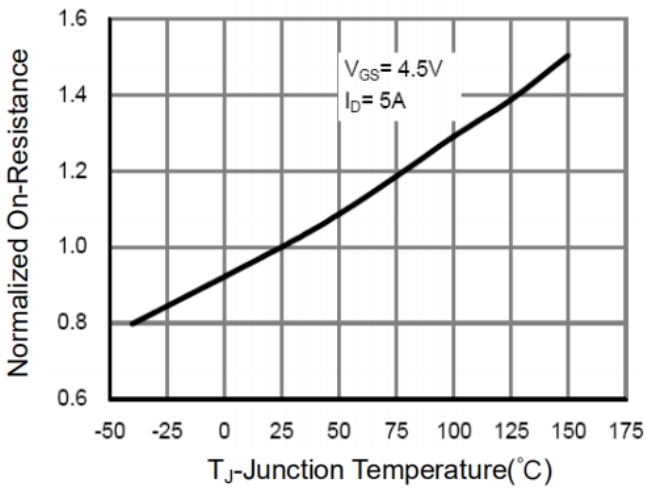
Output Characteristics



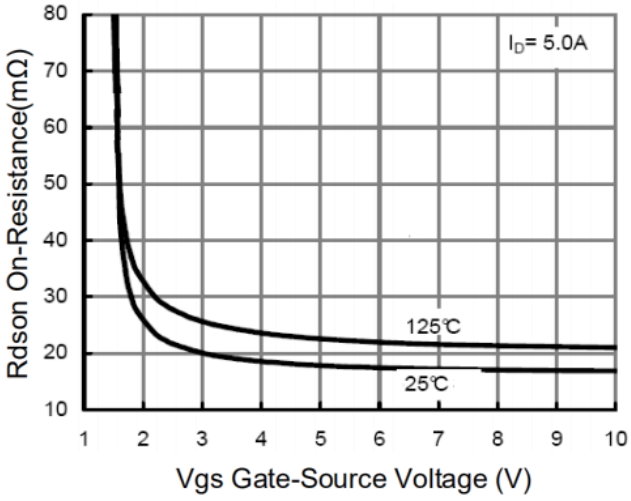
Drain-Source On-Resistance



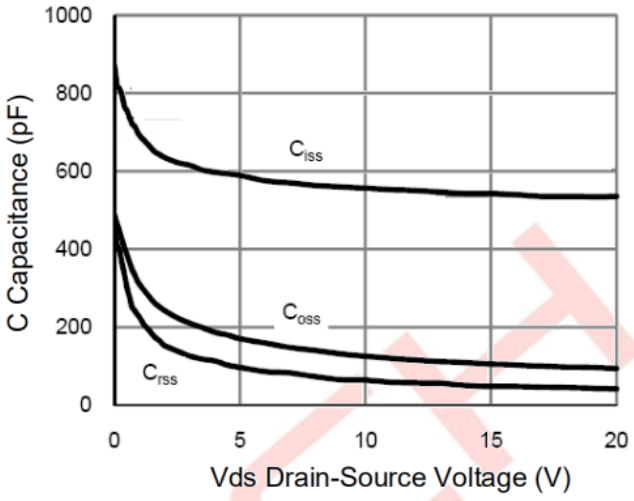
Transfer Characteristics



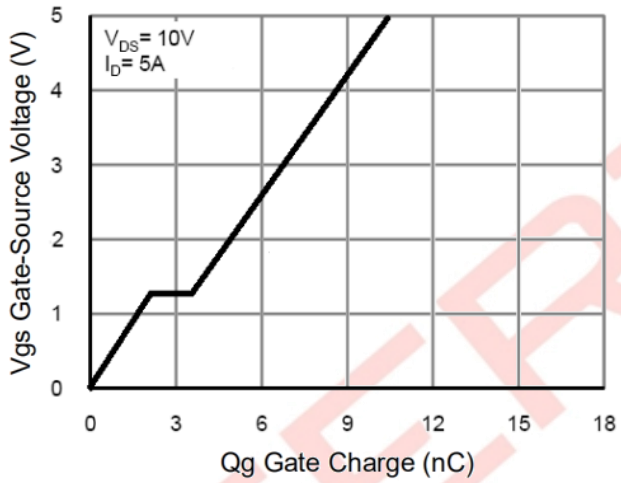
Drain-Source On-Resistance



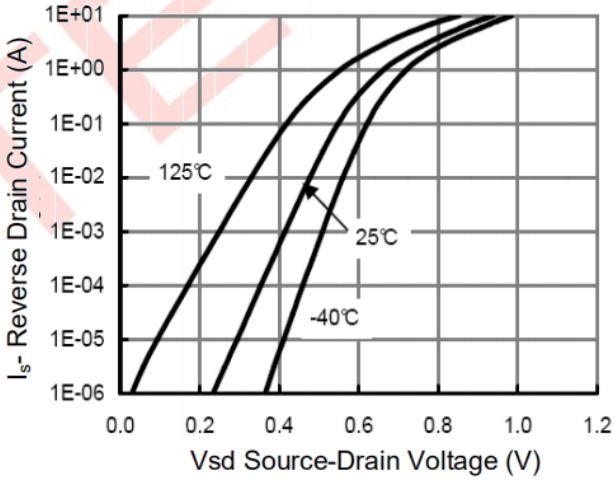
Rdson vs Vgs



Capacitance vs Vds



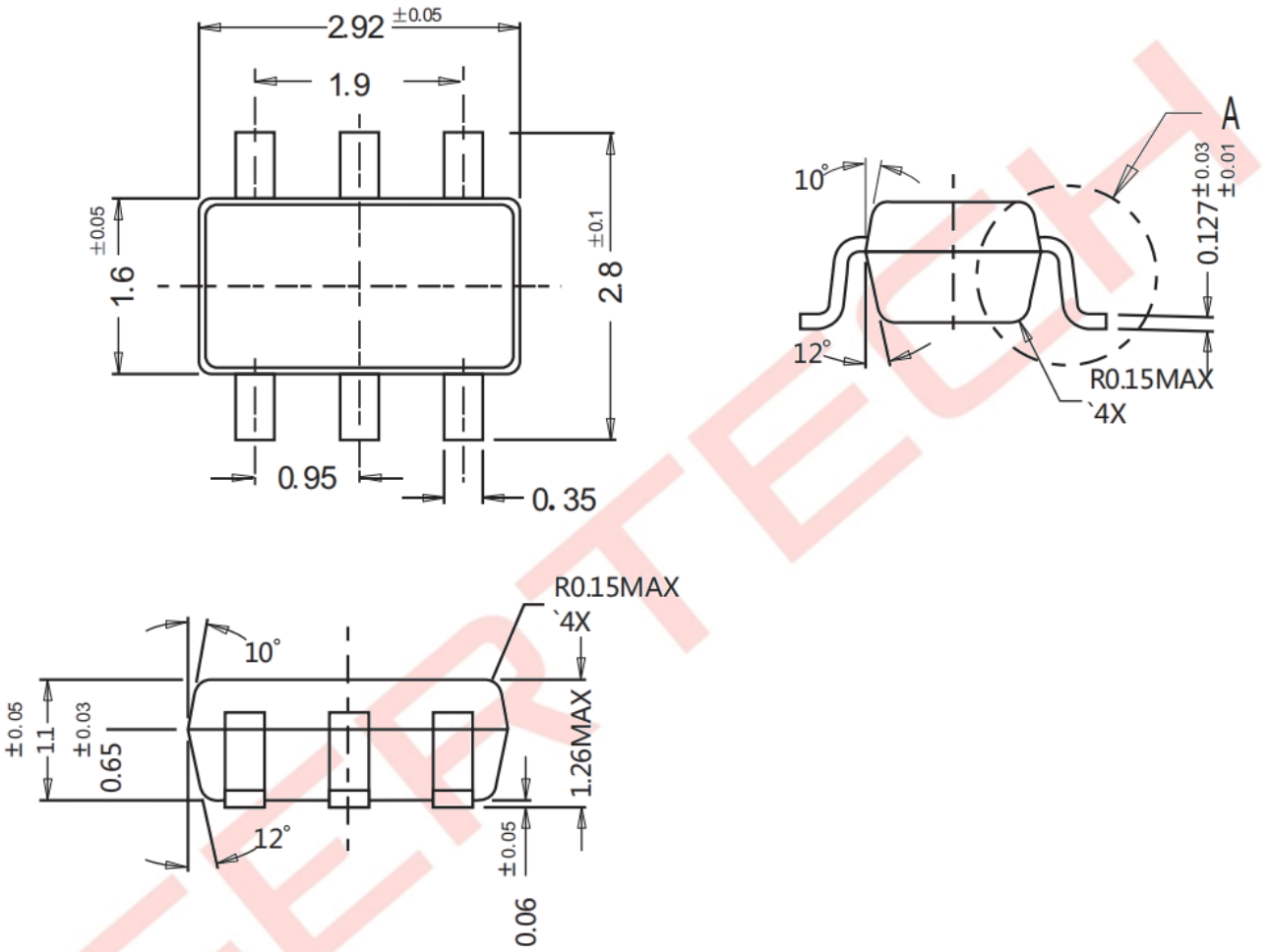
Gate Charge



Source- Drain Diode Forward

Package outline

SOT-23-6



Ordering information

Device	Package	Shipping
ATM8205DNSG	SOT-23-6	3000PCS/Reel&Tape(7inch)