20V Dual N-Channel MOSFET

Description

The PM8205A uses advanced Trench technology and designs to provide excellent $R_{DS(ON)}$ with low gate charge. This device is suitable for use in PWM, load switching and general purpose applications.

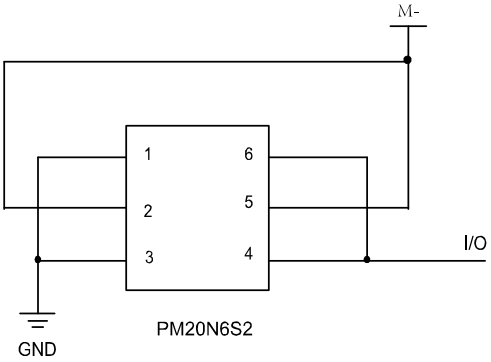
Features

- 20V MOSFET Technology
- Very low on-resistance
- Super fast switching speed
- Cost-effective

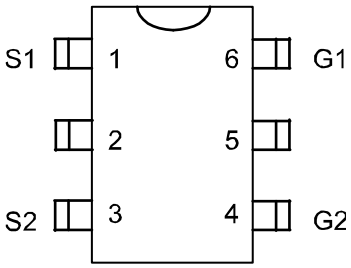
Applications

- Charge protection for lithium batteries (only used for lithium battery protector)
- Drain internal connection, not external use.

The circuit is not applicable as follows:



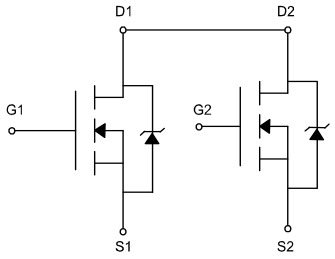
- **Drain end elicited circuit, which can not be used**
- **Parallel G1/G2 do single MOS can not be used**



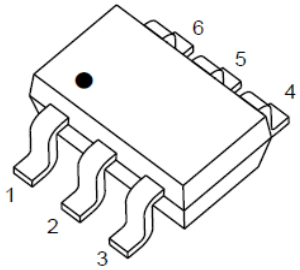
Top View

- **D1/D2 Pin2 and Pin5 do not connect**

Dimensions and Pin Configuration

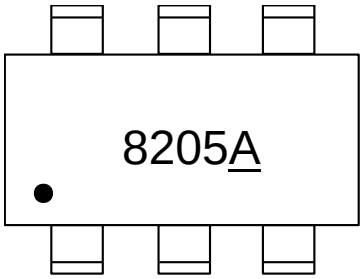


Circuit diagram



SOT-23-6

Marking Information



8205 = Device Marking Code

MOSFET Product Summary

V_{DSS}	$R_{DS(ON)}$ @V_{GS}= 4.5V	$R_{DS(ON)}$ @V_{GS}= 2.5V	I_D
20V	17mΩ	25mΩ	7A

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

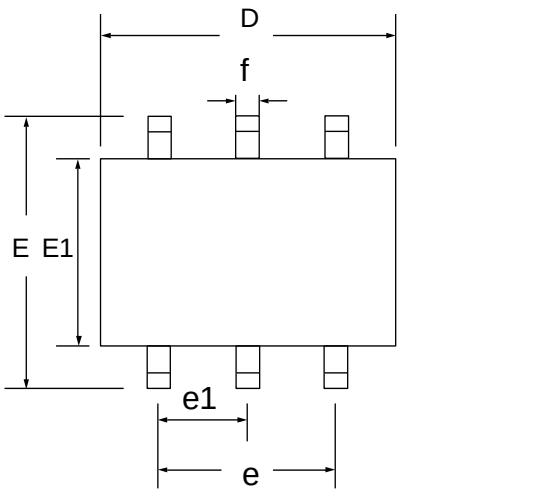
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	±8	V
Continuous Drain Current (V_{GS}=4.5V，@Ta=25°C)	I_D	7	A
Continuous Drain Current (V_{GS}=4.5V，@Ta=70°C)	I_D	5	A
Pulsed Drain Current	I_{DM}	20	A
Power Dissipation (t≤10s, @Ta=25°C)	P_D	1.5	W
Thermal Resistance from Junction to Ambient(t≤10s)	$R_{\theta JA}$	83	℃/W
Junction Temperature	T_J	150	℃
Storage Temperature	T_{STG}	-55~ +150	℃

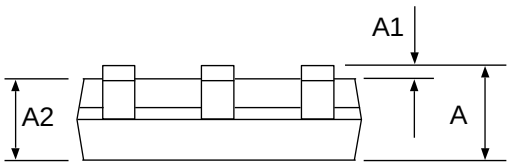
Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	19.5	20.5	-	V
Zero gate voltage drain current	I_{DSS}	V_{DS} =16V,V_{GS} = 0V	-	-	1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±6V, V_{DS} = 0V	-	-	±1	μA
Breakdown voltage temperature coefficient	$\Delta BV_{DSS}/\Delta Tj$	T_A=25℃, I_D=1mA	-	0.03	-	V/°C
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	0.4	0.65	1.0	V
Drain-source on-resistance	$R_{DS(ON)}$	V_{GS} =4.5V, I_D = 6.0A	-	34	45	mΩ
		V_{GS} =3.8V, I_D = 3.0A	-	37	52	
		V_{GS} =2.5V, I_D = 3.0A	-	50	68	
Forward trans conductance	g_{FS}	V_{DS} =5V, I_D =4.5A	-	10	-	S
Diode forward voltage	V_{SD}	I_S=1.0A, V_{GS}=0V, Tj=25°C	-	0.72	1.2	V
Drain source continuous current	I_S	-	-	-	1.7	A

Dynamic characteristics						
Total gate charge	Q_g	V_{DS} =10V, V_{GS} =4.5V, I_D =6A	-	8	-	nC
Gate-source charge	Q_{gs}		-	2.1	-	
Gate-drain charge	Q_{gd}		-	2.5	-	
Input Capacitance	C_{iss}	V_{DS}=8V,V_{GS}=0V,f=1MHz	-	480	-	pF
Output Capacitance	C_{oss}		-	290	-	
Reverse Transfer Capacitance	C_{rss}		-	120	-	
Switching Characteristics						
Turn-on delay time	$t_{d(on)}$	V_{DD}=10V, V_{GS}=4.5V, I_D=1A, R_G=6Ω	-	8	-	ns
Turn-on rise time	t_r		-	12	-	
Turn-off delay time	$t_{d(off)}$		-	34	-	
Turn-off fall time	t_f		-	32	-	

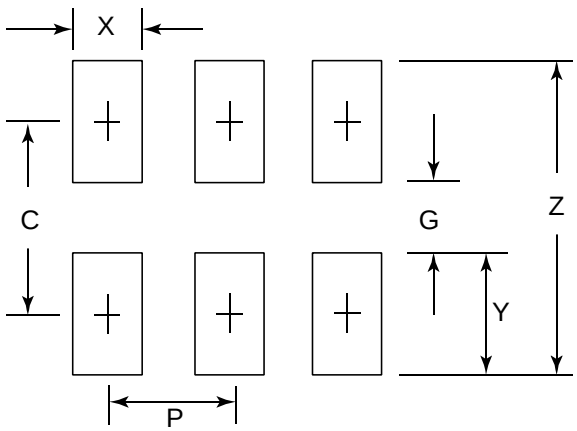
SOT 23-6 Package Outline Drawing





SYM	DIMENSIONS					
	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.90		1.45	0.035		0.057
A1	0.00		0.15	0.000		0.006
A2	0.90	1.15	1.30	0.035	0.045	0.051
D	2.80	2.90	3.10	0.110	0.114	0.122
E	2.80 BSC			0.110 BSC		
E1	1.50	1.60	1.75	0.060	0.063	0.069
e	1.90 BSC			0.075 BSC		
e1	0.95 BSC			0.037 BSC		
f	0.30		0.50	0.012		0.020

Suggested Land Pattern



SYM	DIMENSIONS	
	MILLIMETERS	INCHES
C	2.50	0.098
G	1.40	0.055
P	0.95	0.037
X	0.60	0.024
Y	1.10	0.043
Z	3.60	0.141