

- ★ Green Device Available
- ★ Super Low Gate Charge
- ★ Excellent CdV/dt effect decline
- ★ Advanced high cell density Trench technology

Product Summary

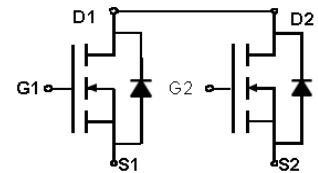
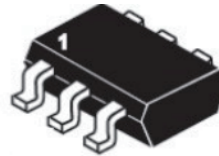
BVDSS	R _{DS(on)}	I _D
20V	19mΩ	6A

Description

The 8205A is the low R_{DS(on)} trenched N-CH MOSFETs with robust ESD protection. This product is suitable for Lithium-ion battery pack applications.

The 8205A meet the RoHS and Green Product requirement with full function reliability approve

SOT23-6L Pin Configuration



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

Symbol	Parameter	Limit	Unit
V _{DS}	Drain-Source Voltage	20	V
V _{GS}	Gate-Source Voltage	±10	V
I _D	Drain Current-Continuous	6	A
I _{DM}	Drain Current-Pulsed (Note 1)	25	A
P _D	Maximum Power Dissipation	1.25	W
T _J , T _{STG}	Operating Junction and Storage Temperature Range	-55 To 150	°C

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
8205A	8205A	SOT23-6L	Ø180mm	8mm	3000 units

Package Marking and Ordering Information

R _{θJA}	Thermal Resistance, Junction-to-Ambient (Note 2)	100	°C/W

Electrical Characteristics ($T_J = 25^\circ\text{C}$ unless otherwise specified)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_{GSS}	Gate-Body Leakage Current	$V_{GS} = \pm 10V, V_{DS} = 0V$	-	-	± 100	nA
On Characteristics ^(Note 3)						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	0.5	0.7	1.2	V
$R_{DS(on)}$	Drain-Source On-State Resistance	$V_{GS} = 4.5V, I_D = 4A$	-	19	27	m Ω
		$V_{GS} = 2.5V, I_D = 3A$	-	25	37	m Ω
g_{FS}	Forward Transconductance	$V_{DS} = 5V, I_D = 4A$	-	10	-	S
Dynamic Characteristics ^(Note 4)						
C_{iss}	Input Capacitance	$V_{DS} = 8V, V_{GS} = 0V, F = 1.0MHz$	-	600	-	PF
C_{oss}	Output Capacitance		-	330	-	PF
C_{riss}	Reverse Transfer Capacitance		-	140	-	PF
Switching Characteristics ^(Note 4)						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD} = 10V, I_D = 1A, V_{GS} = 4V, R_{GEN} = 10\Omega$	-	18	-	nS
t_r	Turn-on Rise Time		-	5	-	nS
$t_{d(off)}$	Turn-Off Delay Time		-	43	-	nS
t_f	Turn-Off Fall Time		-	20	-	nS
Q_g	Total Gate Charge	$V_{DS} = 10V, I_D = 4A, V_{GS} = 4.5V$	-	11	-	nC
Q_{gs}	Gate-Source Charge		-	2.3	-	nC
Q_{gd}	Gate-Drain Charge		-	2.5	-	nC
Drain-Source Diode Characteristics						
V_{SD}	Diode Forward Voltage ^(Note 3)	$V_{GS} = 0V, I_S = 2A$	-	0.8	1.2	V
I_S	Diode Forward Current ^(Note 2)		-	-	2	A

Notes:

- 1.Repetitive Rating: Pulse width limited by maximum junction temperature.
- 2.Surface Mounted on FR4 Board, $t \leq 10$ sec.
- 3.Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
- 4.Guaranteed by design, not subject to production

Typical Electrical and Thermal Characteristics

Figure 1: Switching Test Circuit

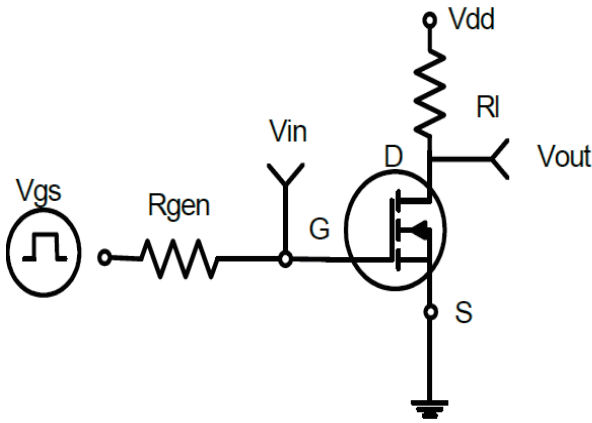


Figure 2: Switching Waveforms

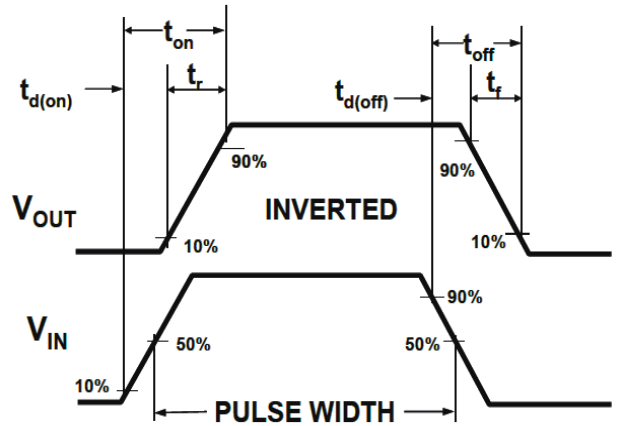


Figure 3: Power Dissipation

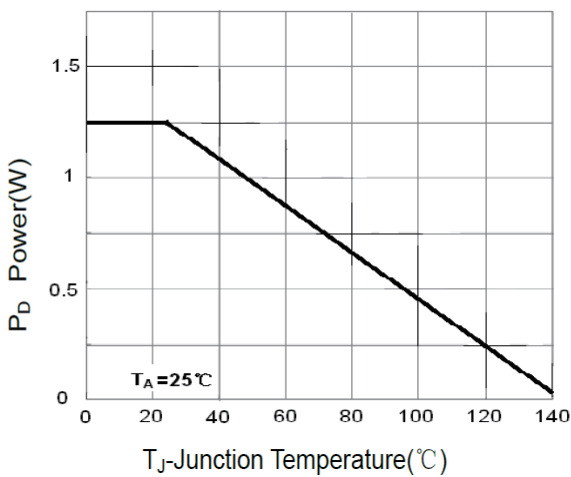


Figure 4: Drain Current

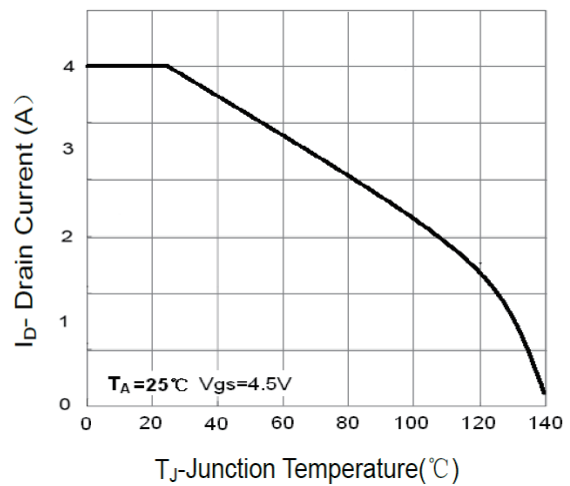


Figure 5: Output Characteristics

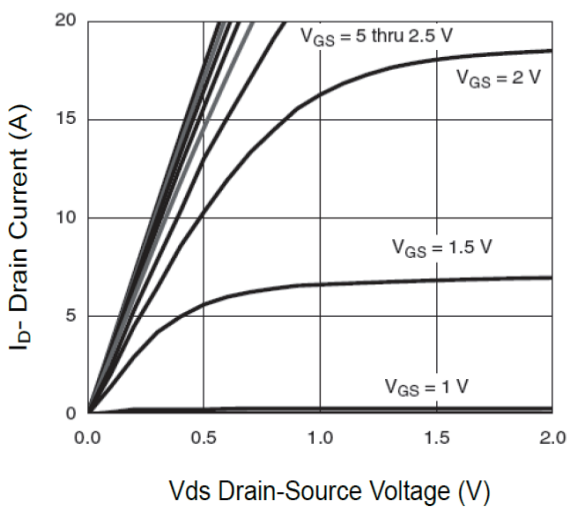
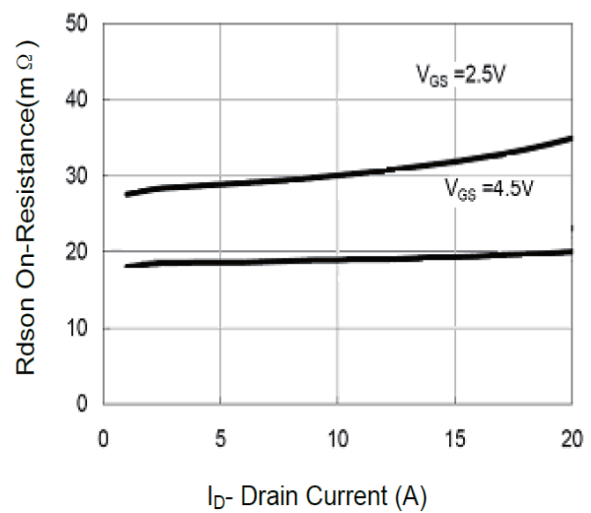


Figure 6: Drain-Source On-Resistance



Typical Performance Characteristics

Figure 7: Transfer Characteristics

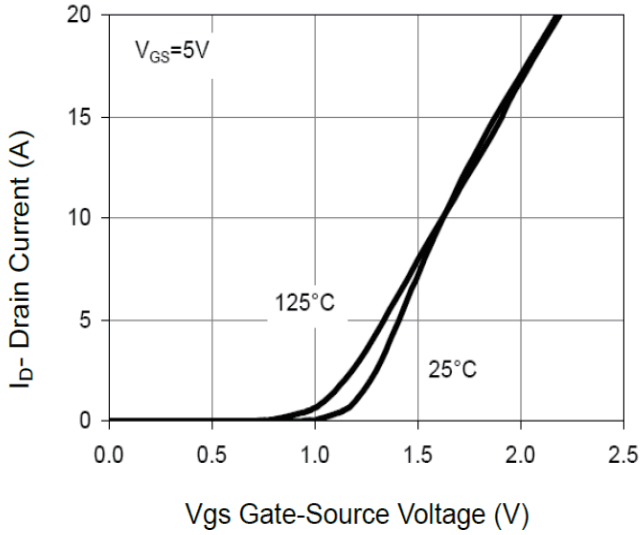


Figure 8: Drain-Source On-Resistance

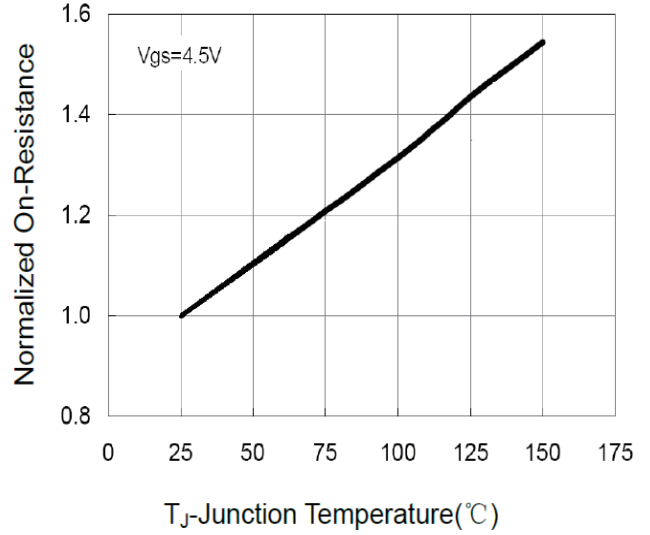


Figure 9: Rds(on) vs Vgs

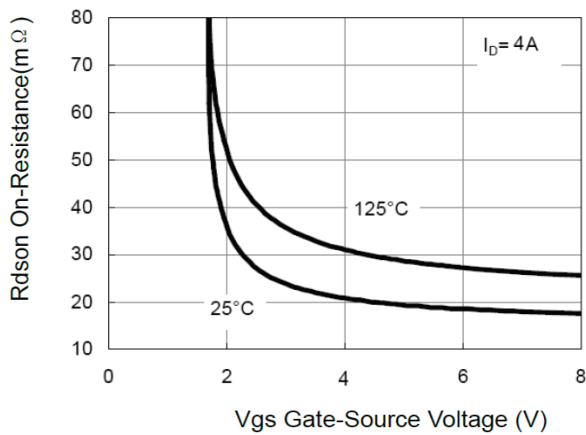


Figure 10: Capacitance vs Vds

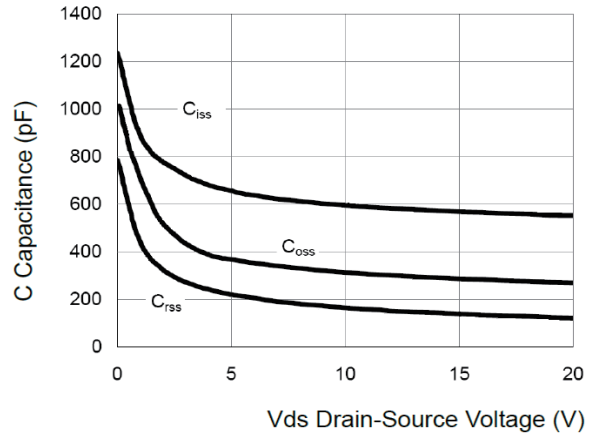


Figure 11: Gate Charge

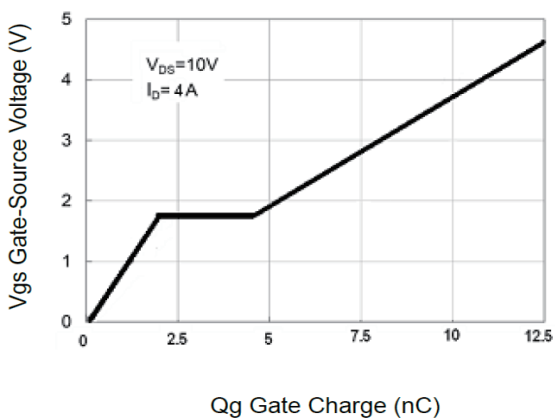
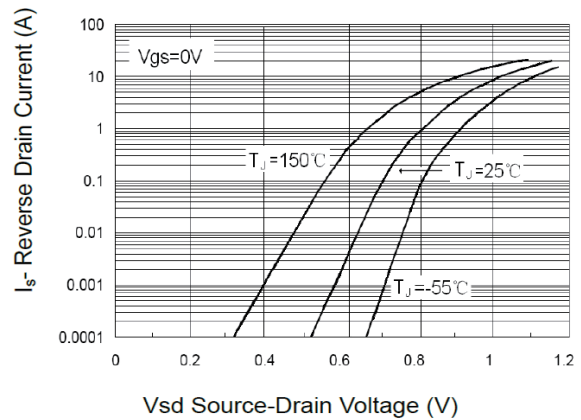


Figure 12: Source- Drain Diode Forward





Typical Performance Characteristics

Figure 13: Safe Operation Area

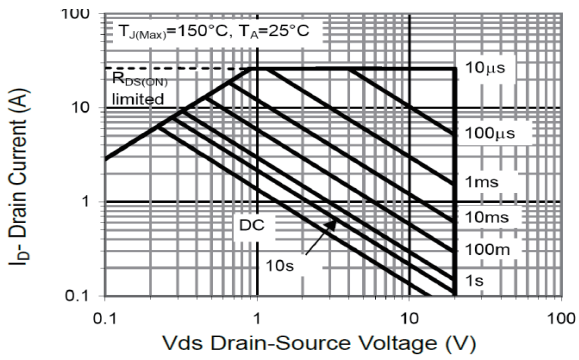
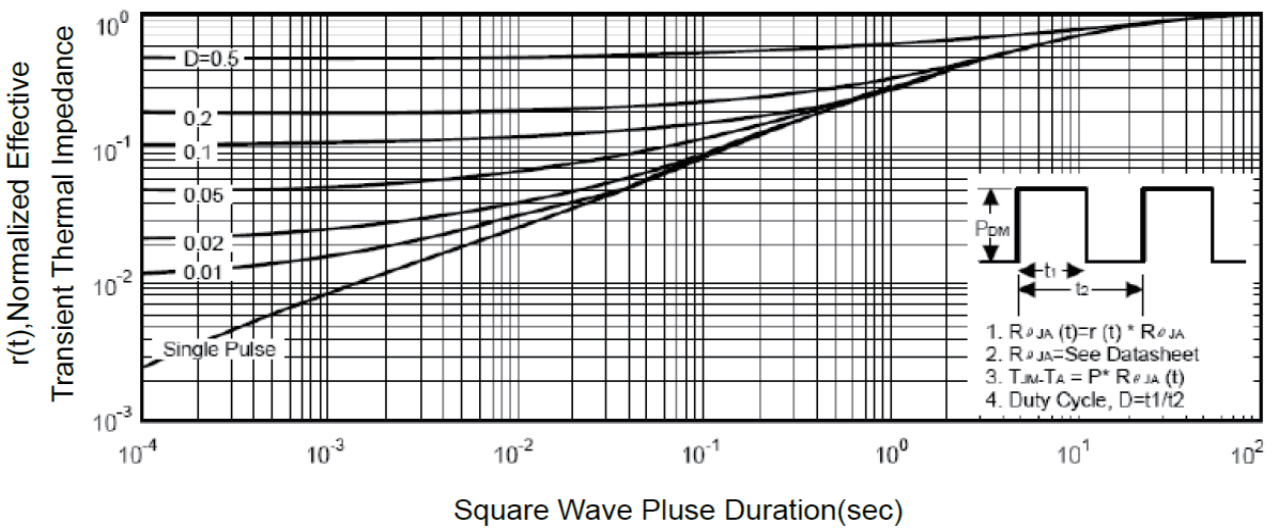
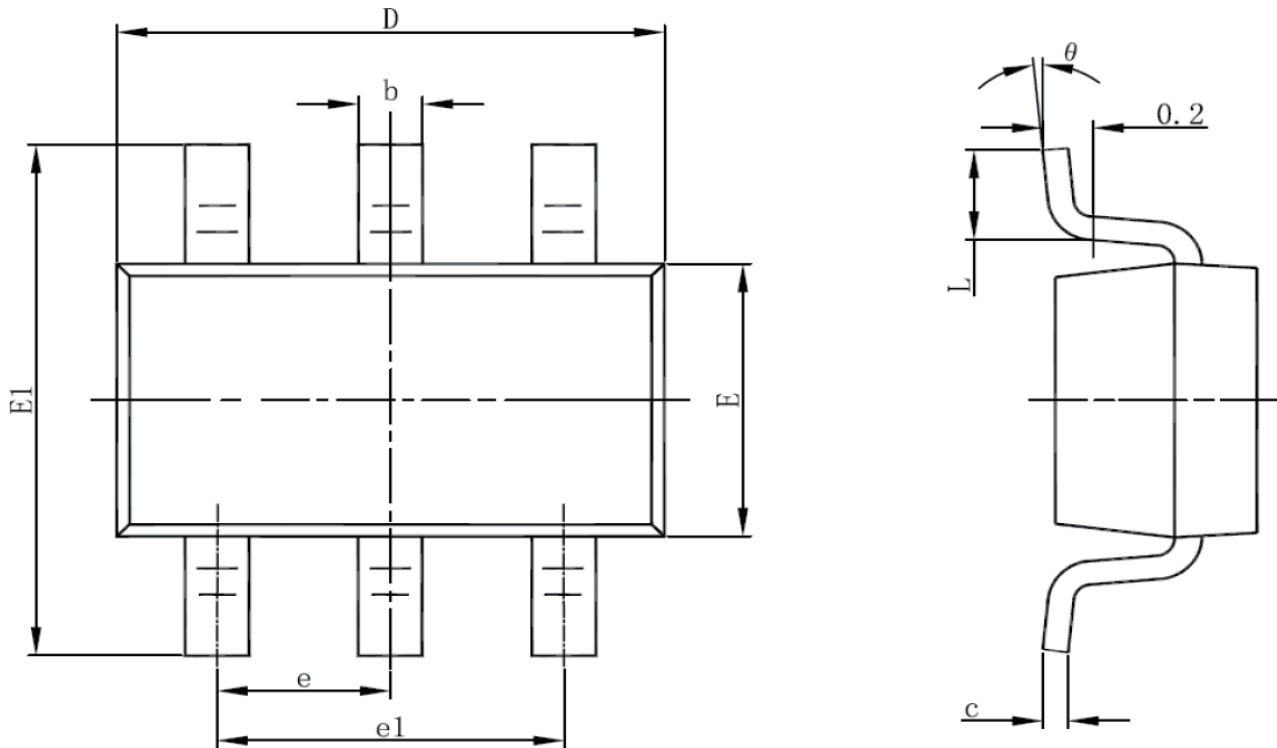


Figure 14: Normalized Maximum Transient Thermal Impedance



SOT23-6L Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

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