

Features ➤ Fast switching ➤ Green Device Available ➤ Improved dv/dt capability ➤ Advanced high cell density Trench technology	Bvdss	Rdson	ID
	20V	20mΩ	6A
	Application ➤ Battery protection ➤ Battery Powered Systems ➤ Power Management in Notebook Computer ➤ Portable Equipment RoHS		

Package

G1

D1/D2

G2

6

5

4

8205A

1

2

3

S1

D1/D2

S2

S1

D

S2

G1

D

G2

D

G1

S1

D

G2

S2

Marking and pin assignment

SOT23-6L Top view

Schematic diagram

Package Marking and Ordering Information

Device Marking	Device	Device Package	Quantity
8205A	8205	SOT23-6L	10000

Absolute Maximum Ratings

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 12	V
Continuous Drain Current	$I_D@T_C=25^{\circ}\text{C}$	6	A
	$I_D@T_C=70^{\circ}\text{C}$	4.8	A
Pulsed Drain Current	I_{DM}	20	A
Continuous Source Current	I_S	1.6	A
Maximum Power Dissipation	$P_D@T_A=25^{\circ}\text{C}$	1.07	W
	$P_D@T_A=70^{\circ}\text{C}$	0.68	W
Junction Temperature Range	T_J	-55 ~ 150	$^{\circ}\text{C}$
Storage Temperature Range	T_{STG}	-55 ~ 150	$^{\circ}\text{C}$

Thermal Resistance Ratings

Parameter	Symbol	Value	Unit
Thermal Resistance Junction-ambient	$R_{\theta JA}$	117	$^{\circ}\text{C/W}$
Thermal Resistance Junction-Case	$R_{\theta JC}$	--	$^{\circ}\text{C/W}$



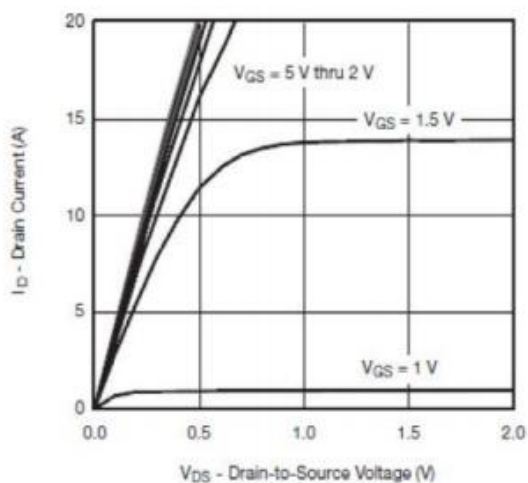
Ordering Information

Ordering Number	Package	Pin Assignment			Packing
Halogen Free		G	D	S	
HL8205	SOT23-6L	4,6	2,5	1,3	Tape Reel

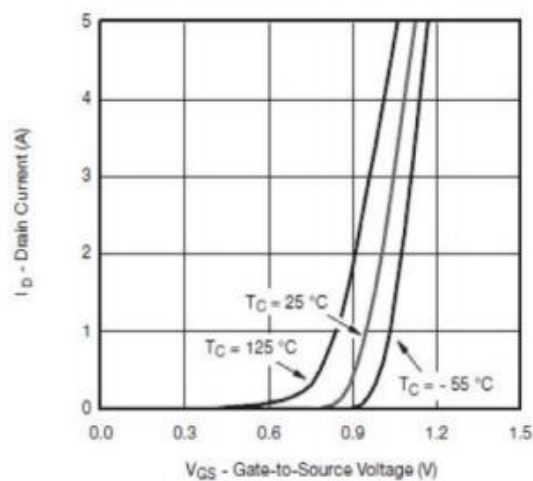
Electrical Characteristics ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Drain-Source Breakdown Voltage	$B_{V_{DS}}$	$V_{GS}=0V, I_D=250\mu A$	20	-	-	V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=20V, V_{GS}=0V$	-	-	1	μA
Gate-body leakage current	I_{GSS}	$V_{GS}=\pm 10V, V_{DS}=0V$	-	-	± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	0.4	-	1	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=4.5V, I_D=3A$	-	20	25	m Ω
		$V_{GS}=2.5V, I_D=2A$	-	26	37	
Input Capacitance	C_{iss}	$V_{DS}=10V, V_{GS}=0V, f=1MHz$	-	850	-	pF
Output Capacitance	C_{oss}		-	120	-	
Reverse Transfer Capacitance	C_{rss}		-	60	-	
Total Gate Charge	Q_g	$V_{DS}=10V, V_{GS}=4.5V,$ $I_D=1A$	-	8.2	-	nC
Gate-Source Charge	Q_{gs}		-	1.2	-	
Gate-Drain Charge	Q_{gd}		-	1	-	
Turn-On Delay Time	$T_{d(on)}$	$V_{DS}=10V, V_{GS}=4.5V,$ $R_G=1\Omega, I_D=5A$	-	10	16	ns
Rise Time	T_r		-	16	25	
Turn-Off Delay Time	$T_{d(off)}$		-	31	45	
Fall Time	T_f		-	10	16	
Forward Trans conductance	g_{fs}	$V_{DS}=5V, I_D=3.6A$	-	10	-	S
Diode Forward Voltage	V_{SD}	$I_S=1.6A$	-	0.85	1.2	V

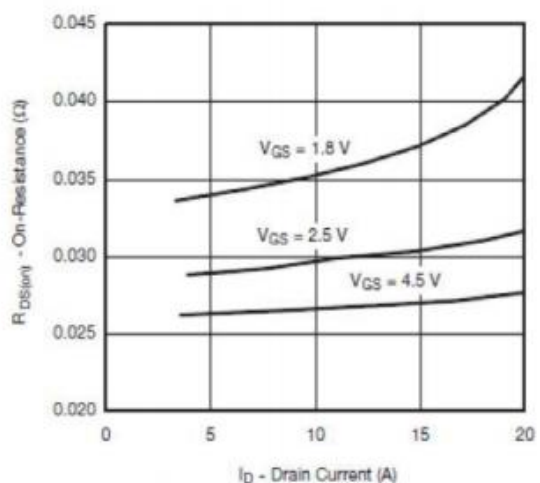
Typical Characteristics



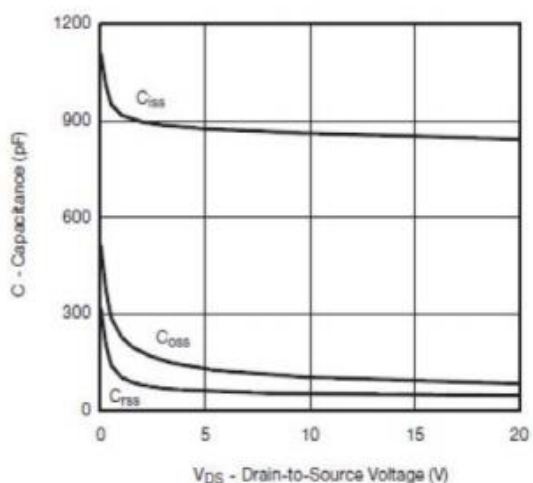
Output Characteristics



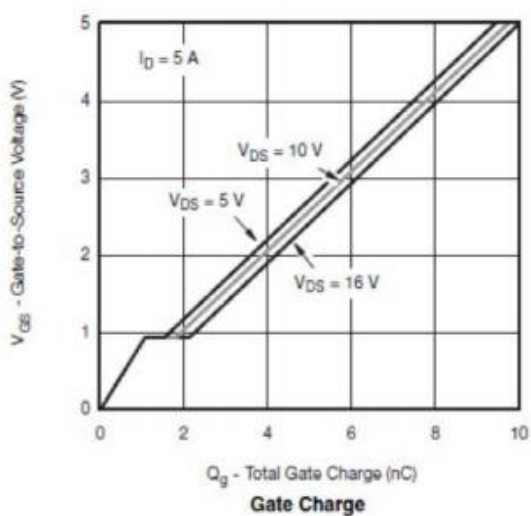
Transfer Characteristics



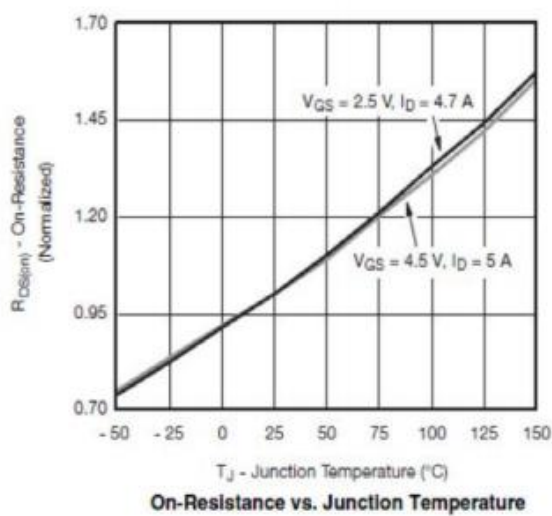
On-Resistance vs. Drain Current and Gate Voltage



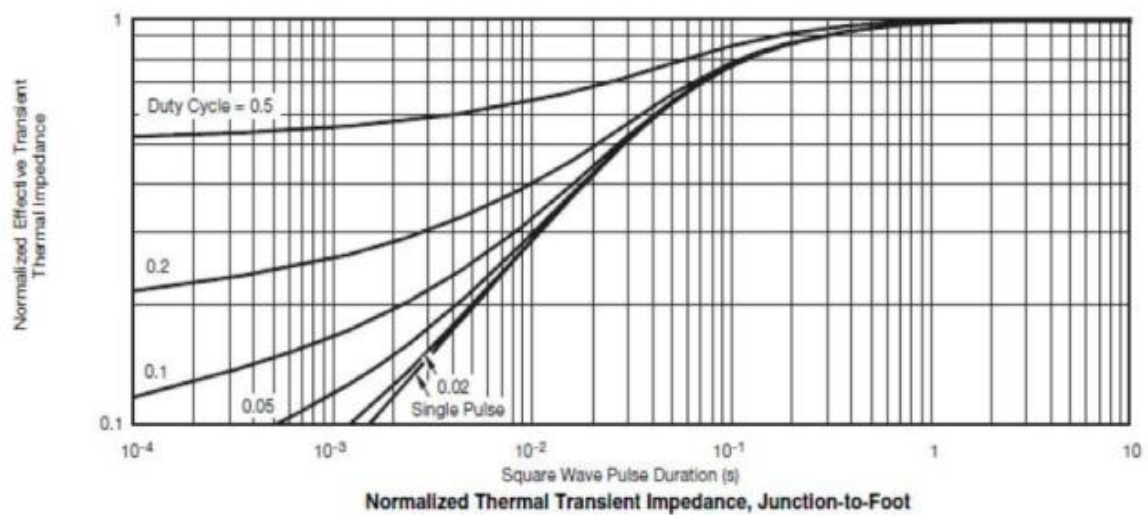
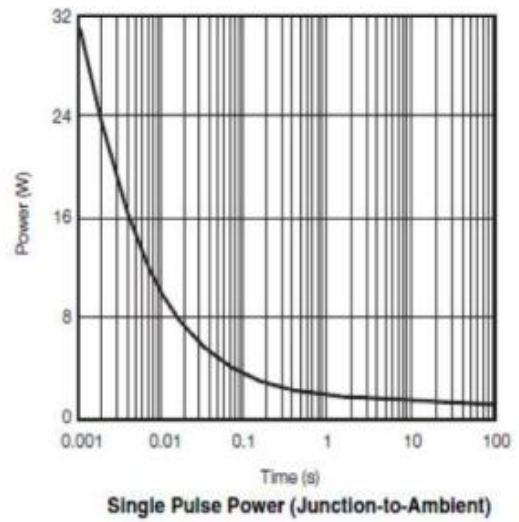
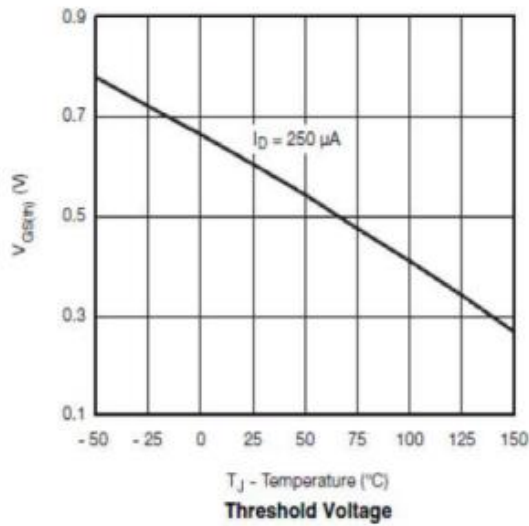
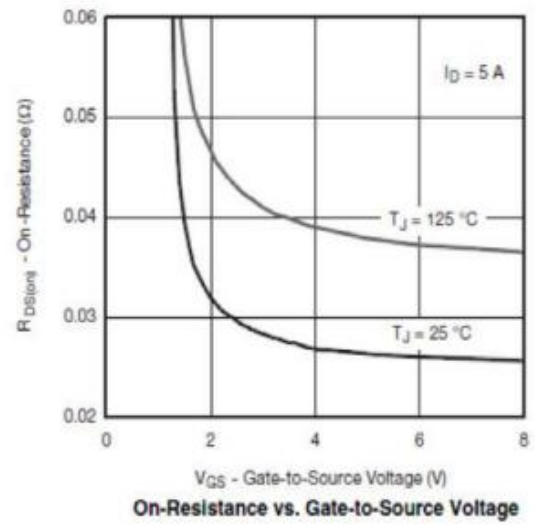
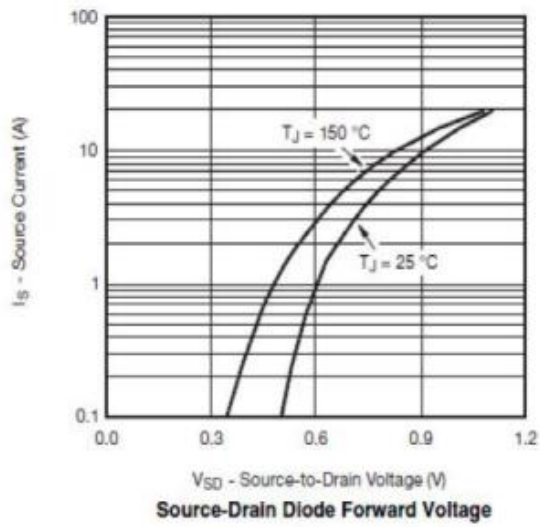
Capacitance



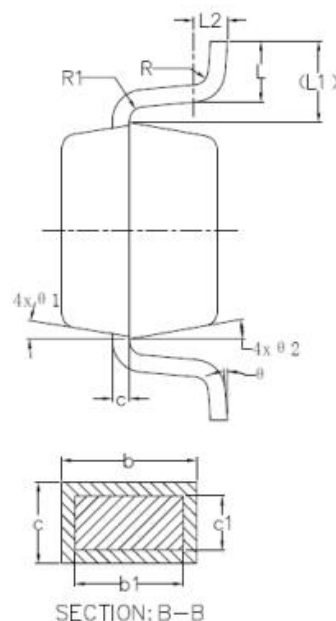
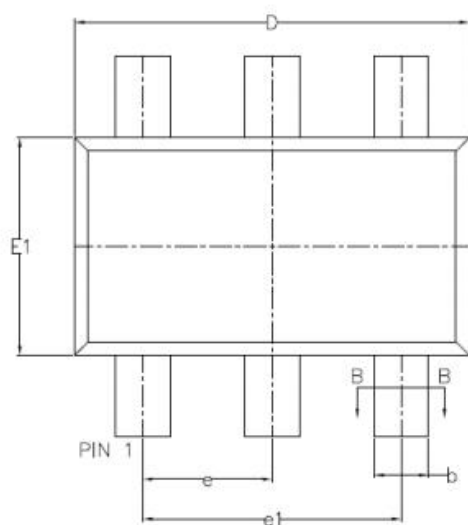
Gate Charge



On-Resistance vs. Junction Temperature

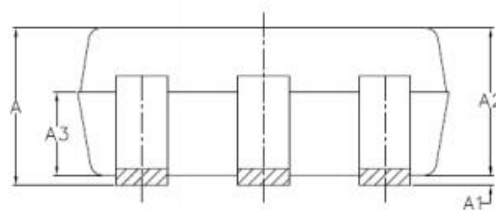


Package Dimensions SOT23-6L



COMMON DIMENSIONS
(UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	NOM	MAX
A	—	—	1.45
A1	0.00	—	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	0.60 REF		
L2	0.25 BSC		
R	0.10	—	—
R1	0.10	—	0.25
θ	0°	—	8°
θ 1	7°	9°	11°
θ 2	8°	10°	12°





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