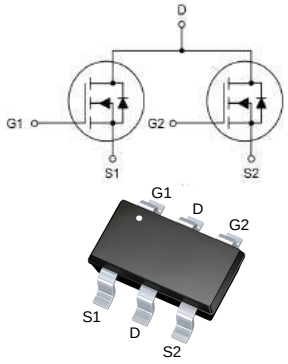
■ PRODUCT CHARACTERISTICS

VDSS	20V
R_{DS}(on)Typ(@V_{GS}=4.5V)	19mΩ
R_{DS}(on)Typ(@V_{GS}=2.5V)	23mΩ
Qg@type	8.4nC
ID	6A



■ FEATURES

* Fast switching capability
* Avalanche energy Specified
* Improved dv/dt capability, high ruggedness

■ ORDER INFORMATION

Order codes		Package	Packing
Halogen-Free	Halogen		
N/A	8205A6	SOT-23A-6L	3000pieces/Reel

■ ABSOLUTE MAXIMUM RATINGS

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	20	V
Gate-Source Voltage		V_{GSS}	±8	V
Drain Current	Continuous	I_D	6	A
	Pulsed	I_{DM}	20	A
Power Dissipation (T_A=25°C)		P_D	1.14	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

■ ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Off characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V, I_D=250μA	20	-	-	V
Breakdown Voltage Temperature Coefficient	$\frac{\Delta BV_{DSS}}{\Delta T_J}$	I_D=1mA, Reference to 25°C	-	0.03	-	V/°C
Drain-Source Leakage Current	I_{DSS}	V_{DS}=20V, V_{GS}=0V,	-	-	1	μA
Gate-Source Leakage Current	I_{GSS}	V_{GS}=±8V	-	-	±100	nA
On characteristics						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS}=V_{GS}, I_D=250μA	0.5	-	1.5	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=6.0A	-	19	25	mΩ
		V_{GS}=2.5V, I_D=5.2A	-	23	32	mΩ
Dynamic characteristics						
Input Capacitance	C_{ISS}	V_{DS}=20V, V_{GS}=0V, f=1.0MHz	-	370	-	pF
Output Capacitance	C_{OSS}		-	78	-	pF
Reverse Transfer Capacitance	C_{RSS}		-	73	-	pF
Switchingcharacteristics						
Total Gate Charge	Q_G	V_{DS} =20V, V_{GS} =5V, I_D =6.0A	-	8.4	-	nC
Gate Source Charge	Q_{GS}		-	1	-	nC
Gate Drain Charge	Q_{GD}		-	1.8	-	nC
Turn-ON Delay Time	$t_{D(ON)}$	V_{GS}=5V, V_{DS}=10V, R_D=10Ω, R_G=6Ω, I_D=6A	-	3.6	-	ns
Turn-ON Rise Time	t_R		-	2.7	-	ns
Turn-OFF Delay Time	$t_{D(OFF)}$		-	19	-	ns
Turn-OFF Fall-Time	t_F		-	7.6	-	ns
Source-drain diode ratings and characteristics						
Drain-Source Diode Forward Voltage	V_{SD}	I_S=1.7A, V_{GS}=0V	-	-	1.2	V
Diode Continuous Forward Current	I_S	V_D=V_G, V_S=1.3V	-	-	1.54	A

Note: Pulse Test : Pulse width ≤ 300μs, Duty cycle ≤ 2%.

■ TYPICAL CHARACTERISTICS

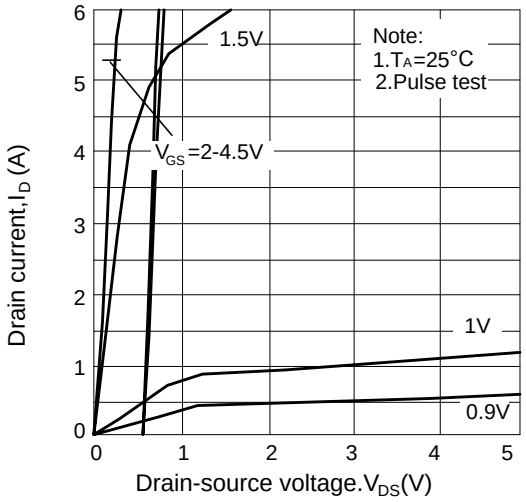


Figure 1:Drain current vs.drain-source voltage

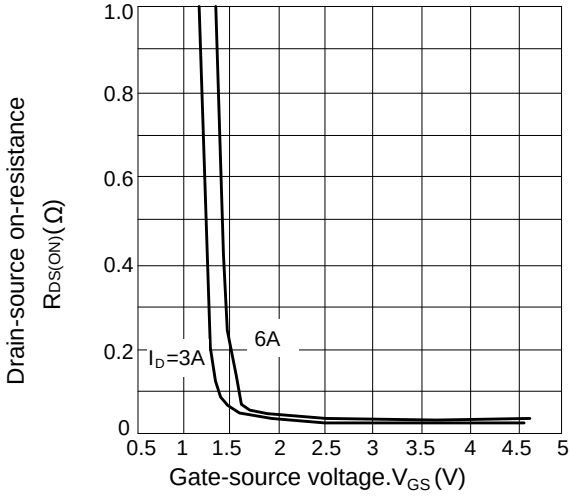


Figure 2:Drain-source on-resistancevs gate

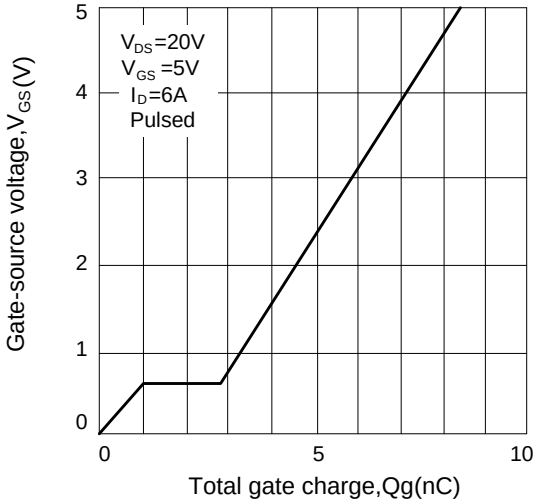


Figure 3:Gate charge characteristics

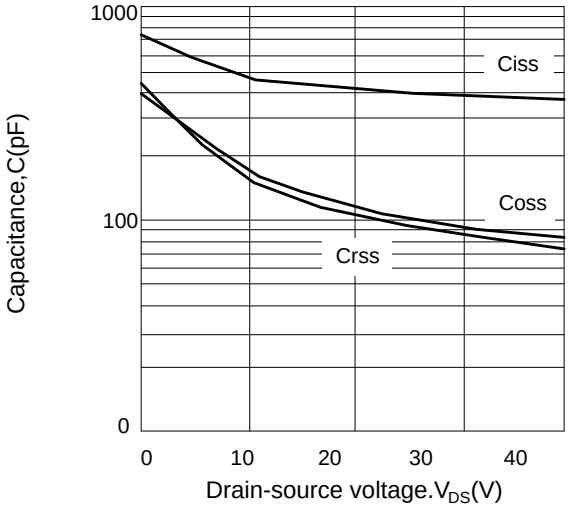


Figure 4:Capacitance characteristics

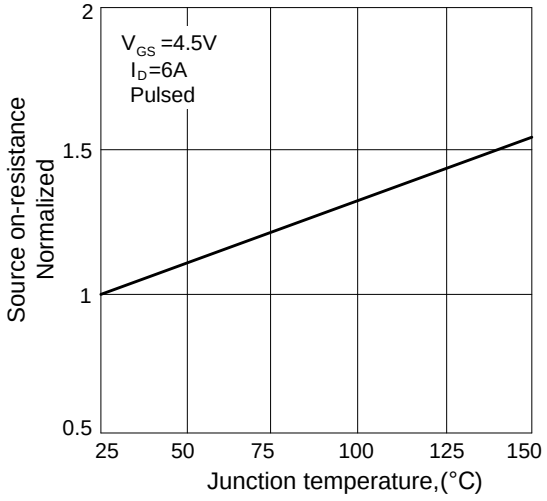


Figure 5:Drain-source on-resistance vs. junction temperature

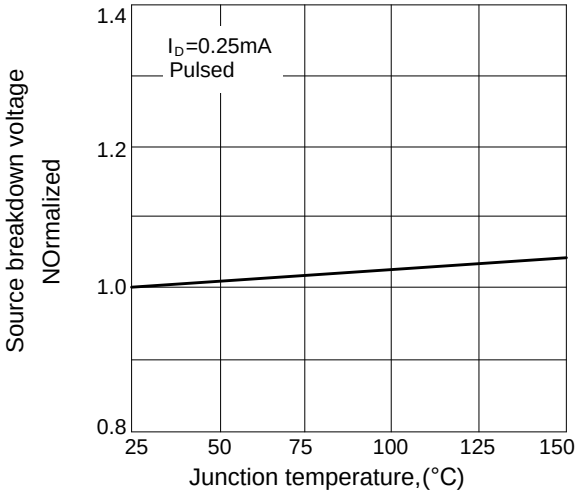


Figure 6:Breakdown voltage vs. junction temperature

■ TYPICAL CHARACTERISTICS(Cont.)

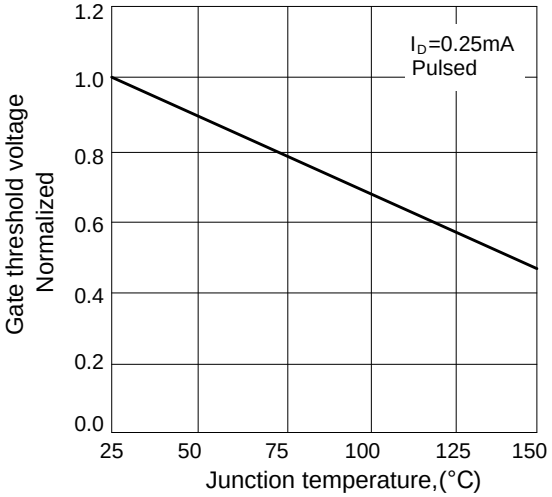


Figure 7:Gate threshold voltage vs. junction temperature

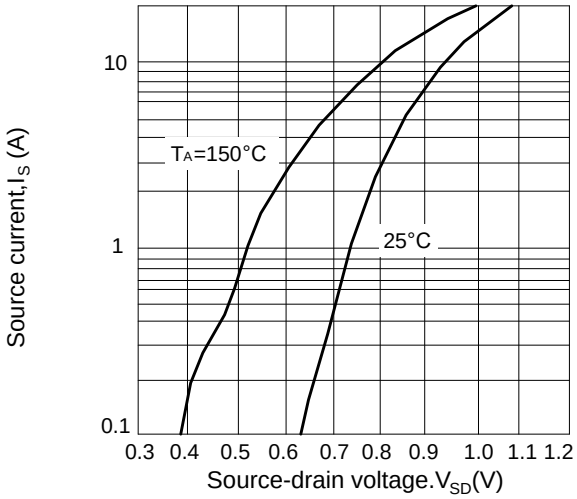


Figure 8:Source current vs.source-drain voltage

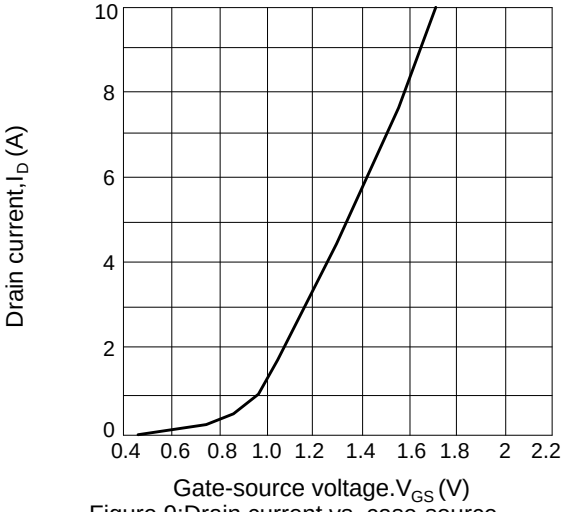


Figure 9:Drain current vs. case-source voltage

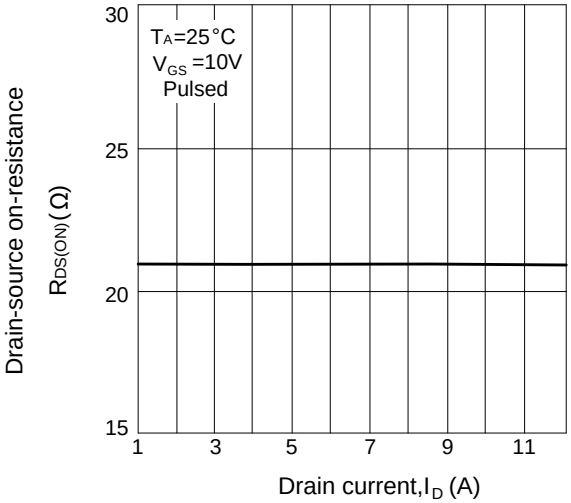


Figure 10:Drain-source on-resistance vs. drain current

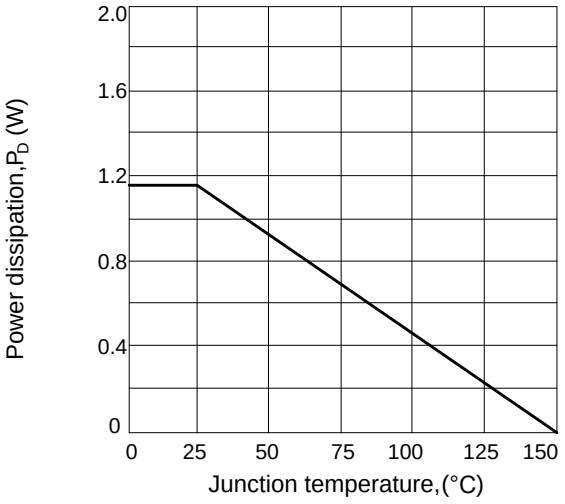


Figure 11:Power dissipation vs.junction temperature

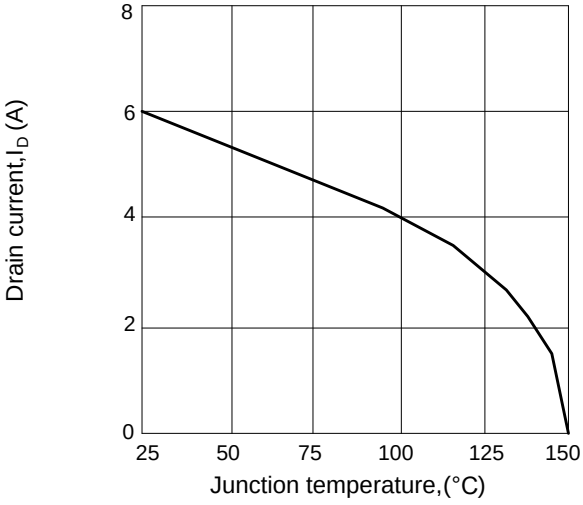
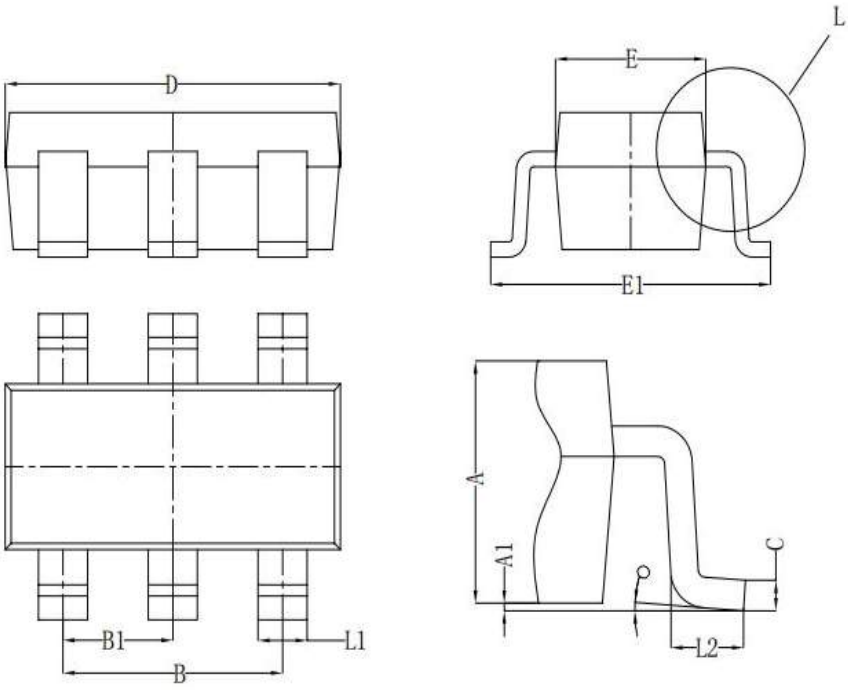


Figure 12:Drain current vs.junction temperature

■ SOT-23A-6L PACKAGE OUTLINE DIMENSIONS



Symbol	Dim in mm		
	Min	Nor	Max
A	1.050	1.100	1.150
A1	0.000	0.050	0.100
L1	0.300	0.400	0.500
C	0.100	0.150	0.200
D	2.820	2.920	3.020
E	1.500	1.600	1.700
E1	2.650	2.800	2.950
B	1.800	1.900	2.000
B1	0.950 TYP		
L2	0.300	0.450	0.600
o	0°	4°	8°