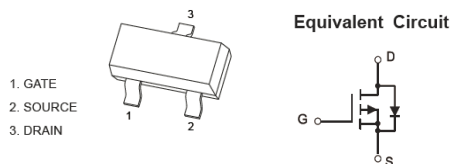


V(BR)DSS	RDS(ON)MAX	ID
-20V	28mΩ	-6A

SOT-23

Marking: 2305A
特征 Features

- Fast Switching
- Low Gate Charge and RDS(on).
- Low Reverse transfer capacitances.
- Power switching application
- Hard switched and high frequency circuits
- Power management

机械数据 Mechanical Data

- SOT-23 Small Outline Plastic Package.
- Epoxy UL: 94V-0.
- Mounting Position: Any.

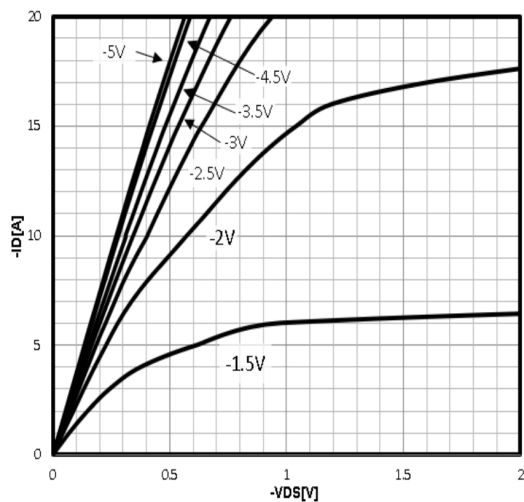
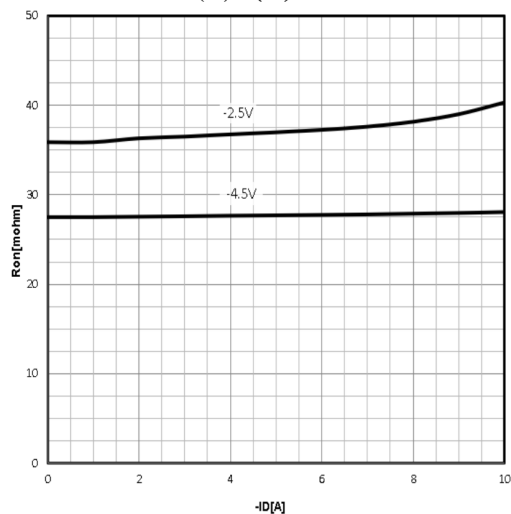
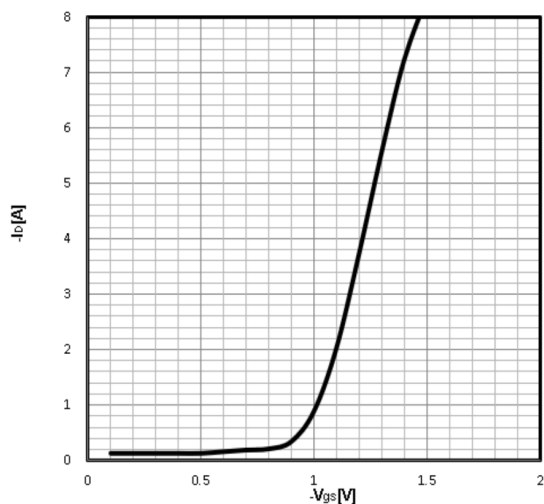
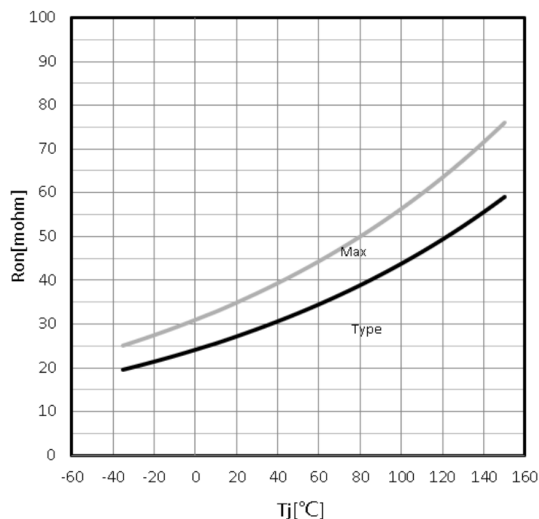
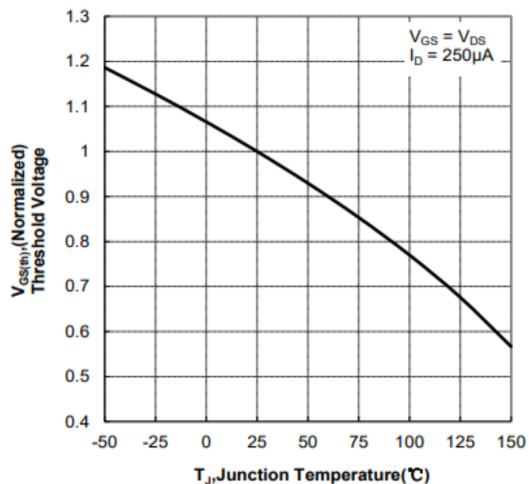
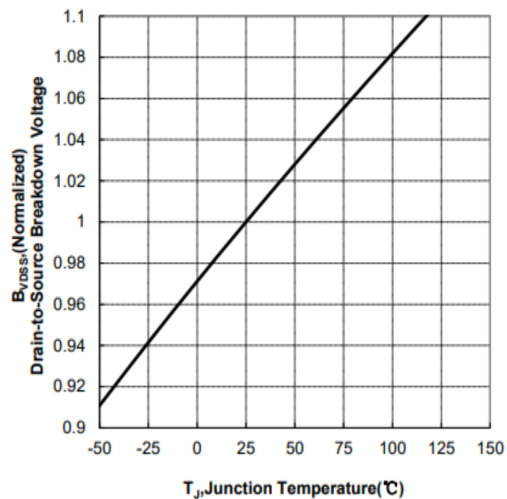
极限值和温度特性(TA = 25°C 除非另有规定)

Maximum Ratings & Thermal Characteristics (Ratings at 25°C ambient temperature unless otherwise specified.)

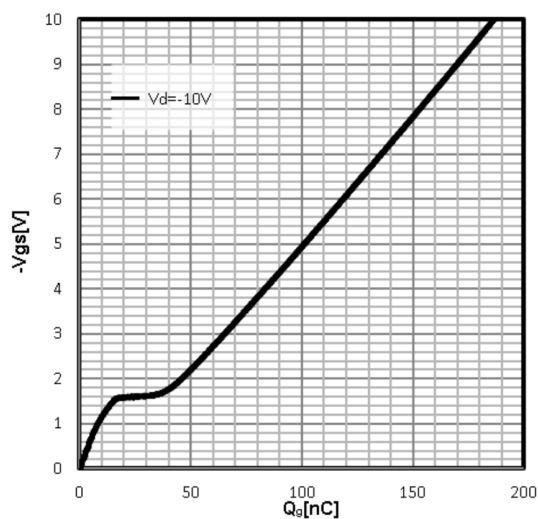
参数 Parameters	符号 Symbol	数值 Value	单位 Unit
Drain-Source Voltage	VDS	-20	V
Gate-Source Voltage	VGS	±12	V
Pulsed Drain Current	ID	-6	A
Continuous Source-Drain Diode Current	IDM	-24	
Power Dissipation	PD	1600	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	-55-+150	°C
Thermal Resistance From Junction to Ambient	RθJA	260	°C/W

电特性 (TA = 25°C 除非另有规定)**Electrical Characteristics** (Ratings at 25°C ambient temperature unless otherwise specified).

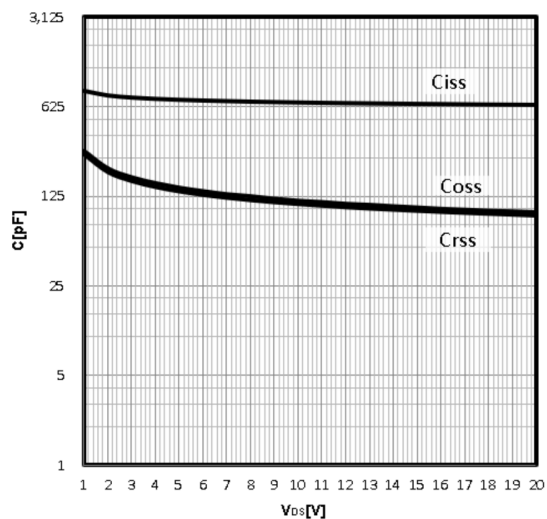
参数 Parameter	符号 Symbols	测试条件 Test Condition	界限 Limits			单位 Unit
			Min	Typ	Max	
Static						
Drain-Source Breakdown Voltage	V(BR)DSS	VGS=0V, ID=-250uA	-20			V
Gate-Threshold voltage	V GS (th)	VDS=VGS, ID=-250uA	-0.4	-0.6	-1	V
Gate-body Leakage	IGSS	VDS=0V, VGS=±12V			±100	nA
Zero Gate Voltage Drain current	IDSS	VDS=-8V, VGS=0V			-1	uA
Drain-Source On-Resistance	RDS(ON)	VGS=-4.5V, ID=-4A		28	36	mΩ
		VGS=-2.5V, ID=-3 A		37	50	
Dynamic						
Input capacitance	Ciss	VDS=-10V, VGS=0V,f=1MHz		673		pF
Output capacitance	Coss			115		
Reverse Transfer capacitance	Crss			109		
Total gate charge	Qg	VDS=-10V, VGS=-10V,ID=-5A		17.7		nC
Gate-source charge	Qgs			1.3		
Gate-drain charge	Qgd			2.5		
Turn-on Time	td(on)	ID =-5.0A, VDS = -10V VGS =-10V, RG = 3.0Ω		15		ns
Rise time	tr			35		
Turn-off Time	td(off)			30		
Fall time	tf			14		
Drain-source body diode characteristics						
Continuous source-drain diode current	Is	Tc=25℃			-6	A
Body diode voltage	VSD	Is=-5A, VGS=0V			-1.2	V

Typical characteristics
Typ. output characteristics
 $I_D = f(V_{DS})$

Typ. drain-source on resistance
 $R_{DS(on)} = f(I_D)$

Typ. transfer characteristics
 $I_D = f(V_{GS})$

Drain-source on-state resistance
 $R_{DS(on)} = f(T_J); I_D = -4A; V_{GS} = -4.5V$

Gate Threshold Voltage
 $-V_{TH} = f(T_J); I_D = -250\mu A$

Drain-source breakdown voltage
 $V_{BR(DSS)} = f(T_J); I_D = -250\mu A$


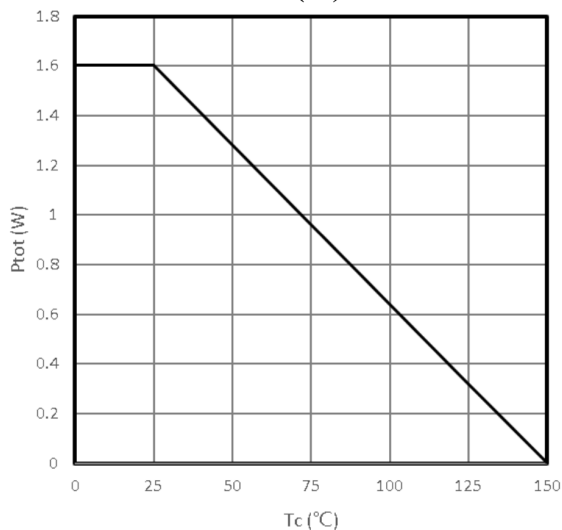
Typ. gate charge
 $V_{GS}=f(Q_{gate}); I_D=-5A$



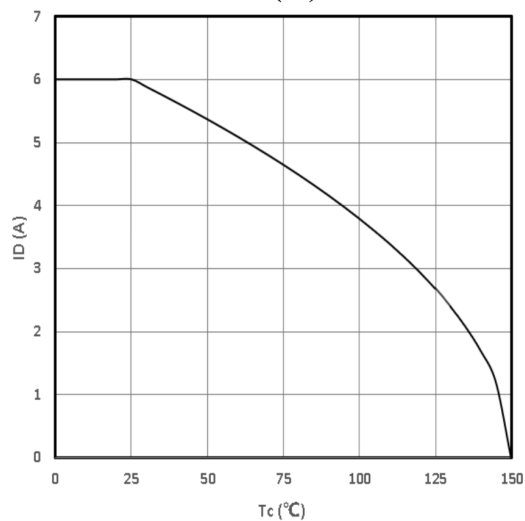
Typ. capacitances
 $C=f(V_{DS}); V_{GS}=0V; f=1MHz$



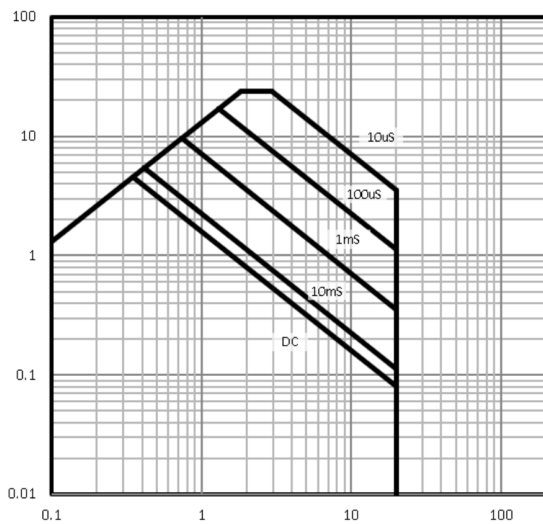
Power Dissipation
 $P_{tot}=f(T_C)$



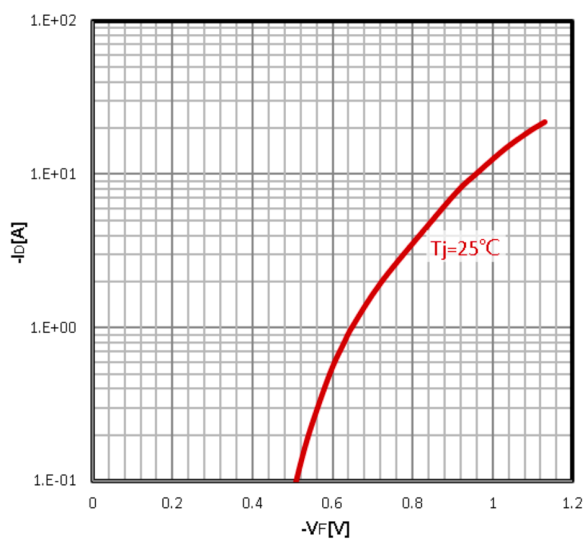
Maximum Drain Current
 $-I_D=f(T_C)$



Safe operating area
 $-I_D=f(-V_{DS})$

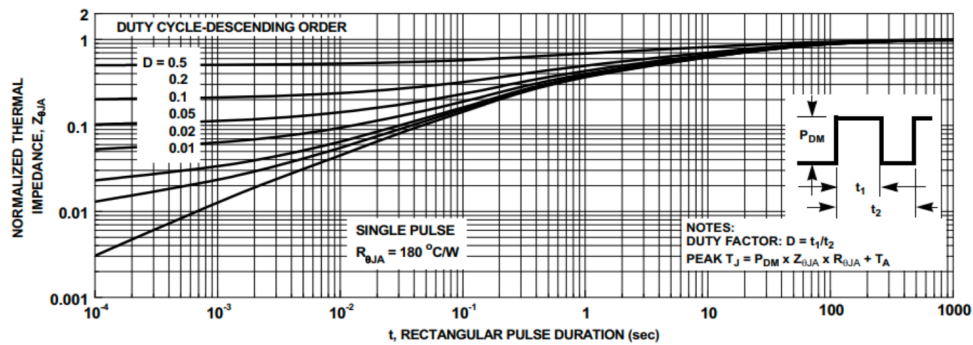
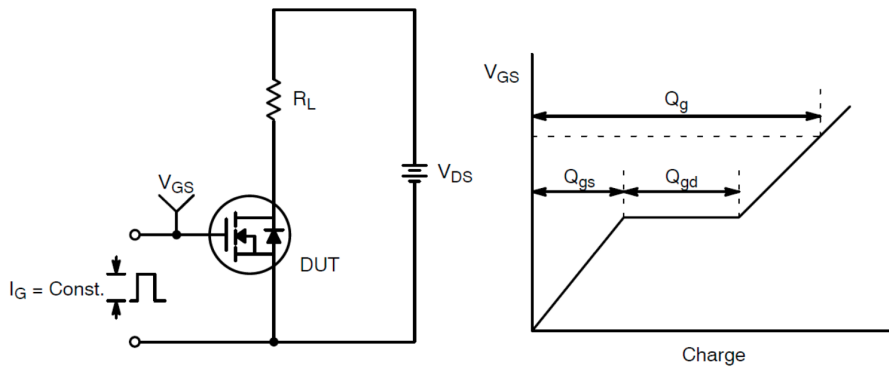
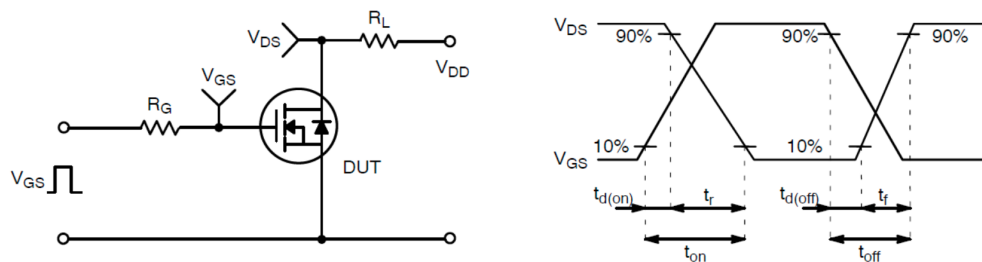
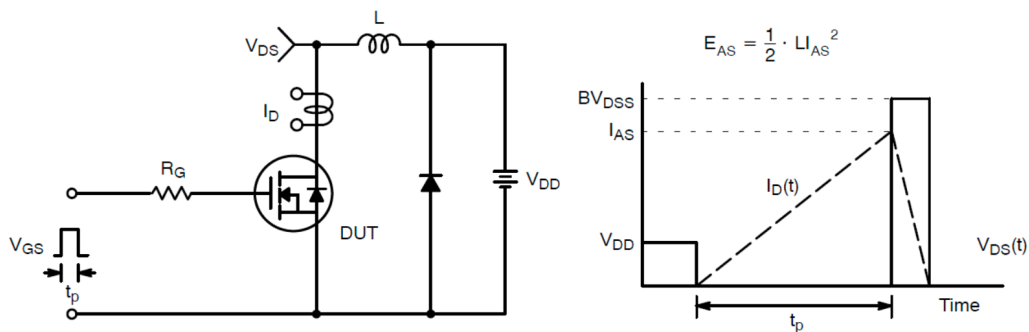


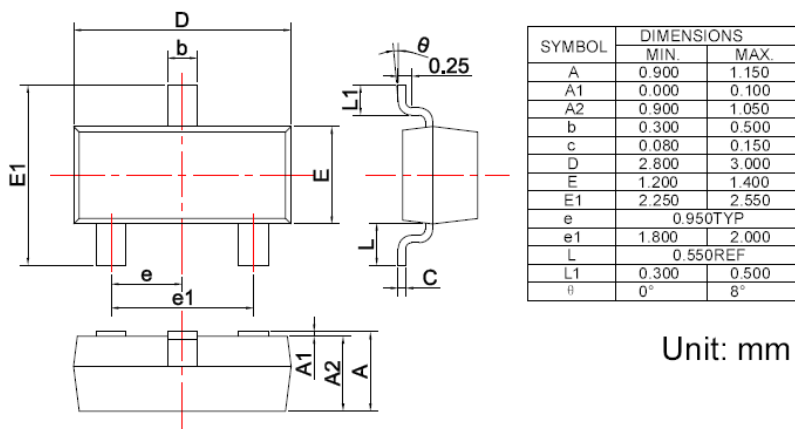
Body Diode Forward Voltage Variation
 $-I_F=f(-V_{DS})$



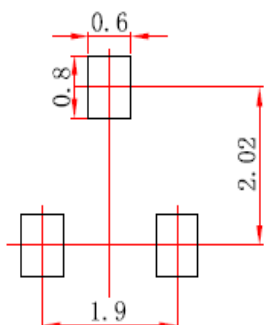
Max. transient thermal impedance

$$Z_{thJC}=f(t_p)$$


Test Circuit and Waveform:

Gate Charge Test Circuit & Waveform

Resistive Switching Test Circuit & Waveforms

Unclamped Inductive Switching Test Circuit & Waveforms

SOT-23 PACKAGE OUTLINE Plastic surface mounted package

焊盘设计参考 Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs


Note:

1. Controlling dimension: In millimeters.
2. General tolerance: $\pm 0.05\text{mm}$.
3. The pad layout is for reference purposes only.

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