

/ Descriptions

SOT-23 NPN Silicon NPN transistor in a SOT-23 Plastic Package.

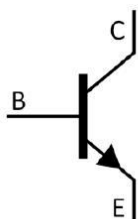
/ Features

High voltage, Low saturation voltage, low collector capacitance output, complementary pair with MMBTA92.

/ Applications

High voltage control circuit.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Emitter PIN 3 Collector

/ Marking

h_{FE} Range	>40
Marking	H1D

/ Absolute Maximum Ratings(Ta=25 –)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	300	V
Collector to Emitter Voltage	V_{CEO}	300	V
Emitter to Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	500	mA
Collector Power Dissipation*	$*P_C$	350	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

*: 4.0*4.0*0.15mm³ FR-4 PCB

*:Device mounted on FR-4 PCB 4.0*4.0*0.15mm³

/ Electrical Characteristics(Ta=25 –)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=100\mu A$ $I_E=0$	300			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$ $I_B=0$	300			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=100\mu A$ $I_C=0$	6.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=200V$ $I_E=0$			0.1	μA
Emitter Base Cut-Off Current	I_{EBO}	$V_{BE}=6.0V$ $I_C=0$			0.1	μA
DC Current Gain	$*h_{FE(1)}$	$V_{CE}=10V$ $I_C=10mA$	40			
	$*h_{FE(2)}$	$V_{CE}=10V$ $I_C=30mA$	40			
	$*h_{FE(3)}$	$V_{CE}=10V$ $I_C=1.0mA$	25			
Collector to Emitter Saturation Voltage	$*V_{CE(sat)}$	$I_C=20mA$ $I_B=2.0mA$			0.5	V
Base to Emitter Saturation Voltage	$*V_{BE(sat)}$	$I_C=20mA$ $I_B=2.0mA$			0.9	V
Transition Frequency	f_T	$I_C=10mA$ $V_{CE}=20V$ $f=100MHz$	50			MHz
Collector output capacitance	C_{ob}	$V_{CB}=20V$ $I_E=0$ $f=1.0MHz$			3.0	pF

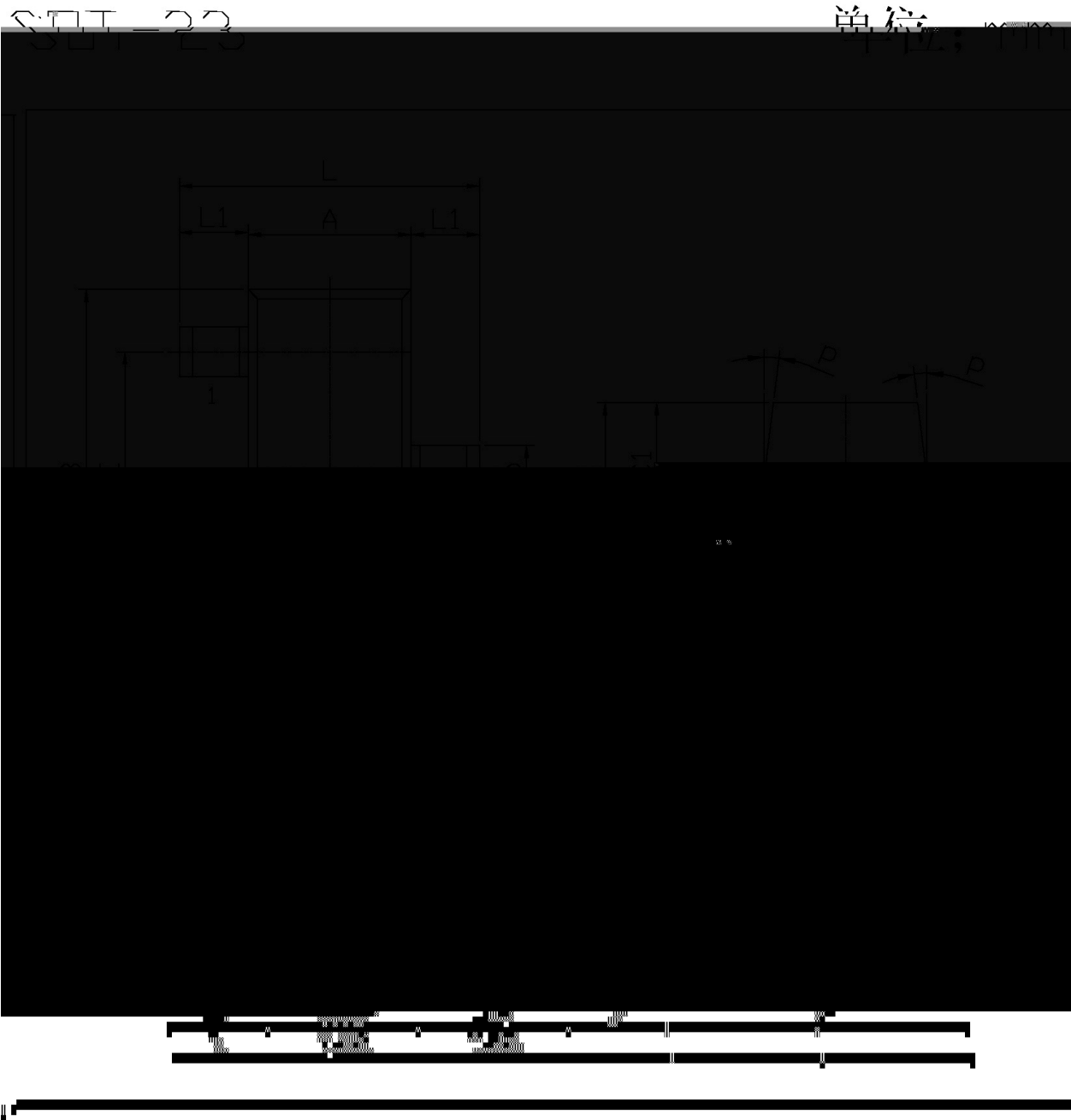
* $\leq 300\mu S$ $\leq 2.0\%$

*pulse test: pulse width $\leq 300\mu S$, duty cycle $\leq 2.0\%$.

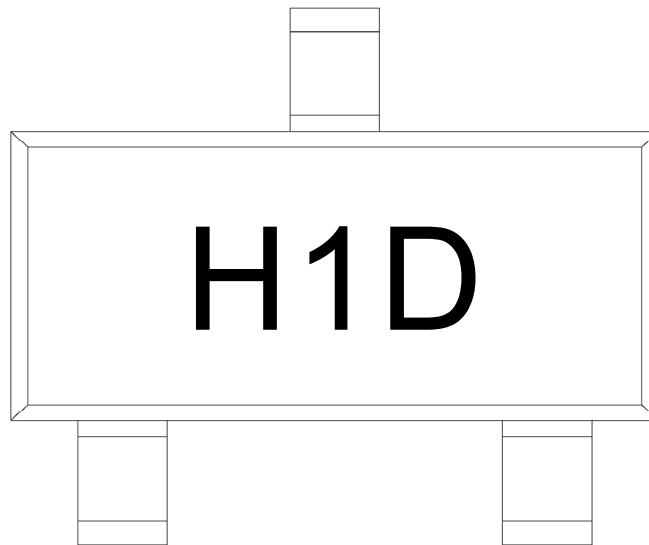
/ Electrical Characteristic Curve



/ Package Dimensions



/ Marking Instructions



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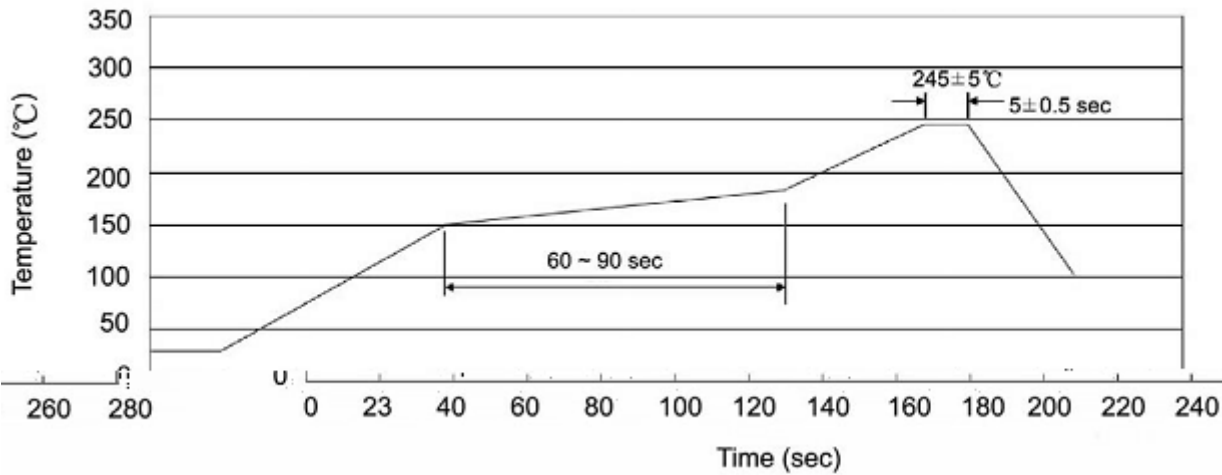
1D

Note:

H: Company Code.

1D: Product Type Code.

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Note:

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|---|--------|-----------|---|
| 1 | 25 150 | 60 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 2 | 245±5 | 5±0.5sec; | 2.Peak Temp.:245±5 , Duration:5±0.5sec. |
| 3 | 2 10 | /sec. | 3. Cooling Speed: 2~10 /sec. |

/ Resistance to Soldering Heat Test Conditions

260±5 10±1 sec. Temp.:260±5 Time:10±1 sec

/ Packaging SPEC.

/ REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-23	3,000	10	30,000	6	180,000	7 ×8	180×120×180	390×385×205

/ Notices