

MMBT5089

RevF Apr.-2017

/ Descriptions

SOT-23

NPN

Silicon NPN transistor in a SOT-23 Plastic Package.

/ Features

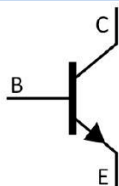
Low noise, high gain.

/ Applications

1 μ A 50mA

General purpose amplifier applications at collector currents from 1 μ A to 50mA.

/ Equivalent Circuit



/ Pinning



PIN 1 Base

PIN 2 Emitter

PIN 3 Collector

/ h_{FE} Classifications & Marking

h_{FE} Range	400 1200
Marking	H1R

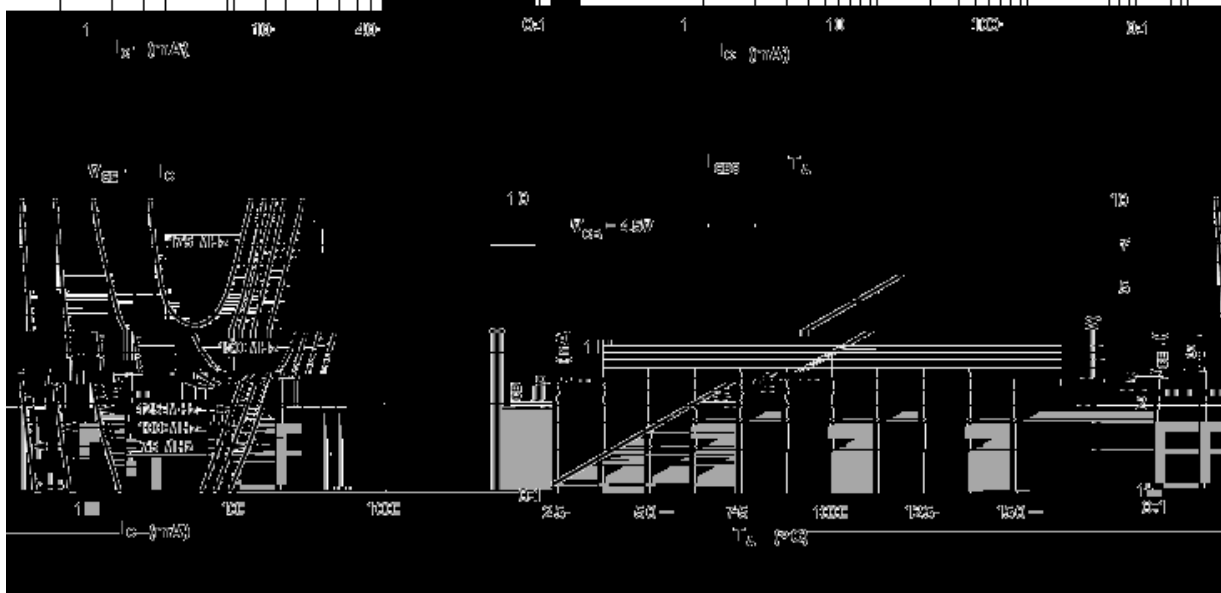
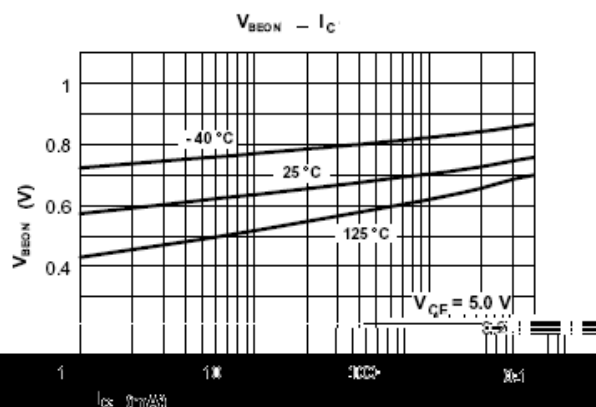
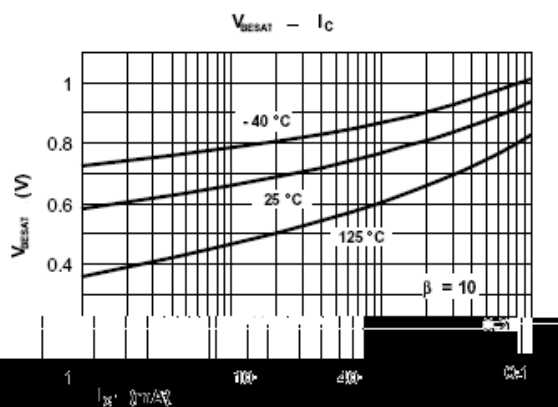
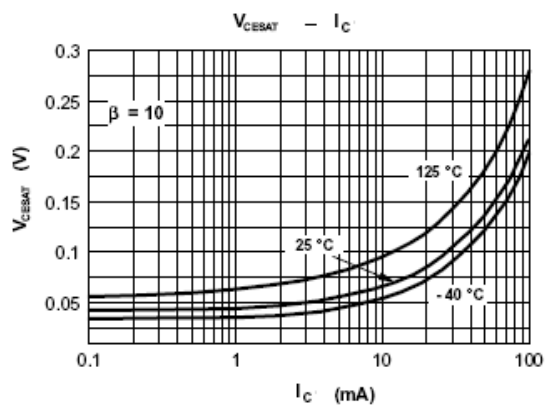
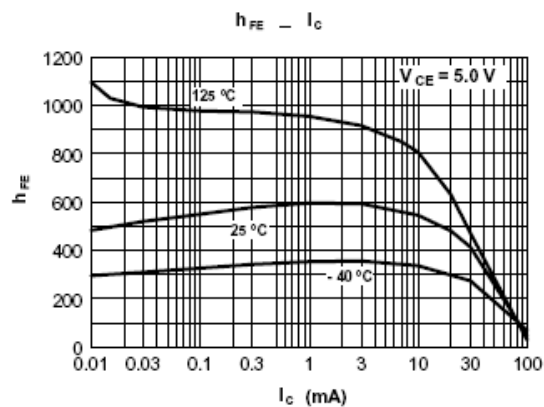
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	30	V
Collector to Emitter Voltage	V_{CEO}	25	V
Emitter to Base Voltage	V_{EBO}	4.5	V
Collector Current	I_C	100	mA
Collector Power Dissipation	P_C	350	mW
Junction Temperature	T_J	-55 150	
Storage Temperature Range	T_{stg}	30	V

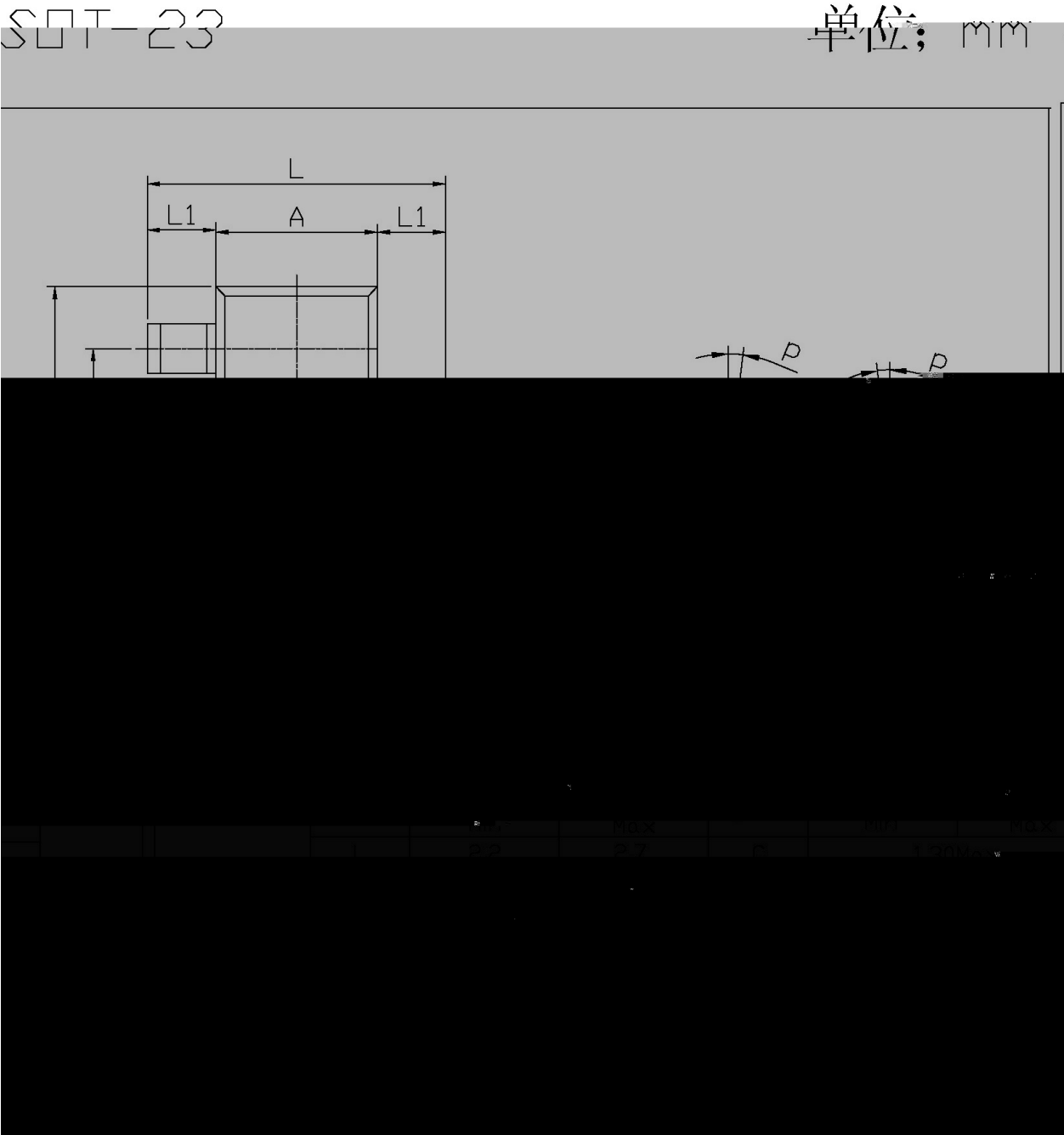
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=100\mu A$ $I_E=0$	30			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$ $I_B=0$	25			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=15V$ $I_E=0$			50	nA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=4.5V$ $I_C=0$			100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5.0V$ $I_C=100\mu A$	400		1200	
	$h_{FE(2)}$	$V_{CE}=5.0V$ $I_C=1.0mA$	450			
	$h_{FE(3)}$	$V_{CE}=5.0V$ $I_C=10mA$	400			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA$ $I_B=1.0mA$			0.5	V
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=10mA$ $I_B=5.0mA$			0.8	V
Collector-Base Capacitance	C_{cb}	$V_{CB}=5.0V$ $f=100kHz$ $I_E=0$			4.0	pF
Emitter-Base Capacitance	C_{eb}	$V_{eb}=0.5V$ $f=100kHz$ $I_E=0$			10	pF
Transition Frequency	f_T	$I_C=500\mu A$ $V_{CE}=5.0V$ $f=20MHz$	50			MHz
Small-Signal Current Gain	h_{fe}	$I_C=1.0mA$ $f=1.0MHz$ $V_{CE}=5.0V$	450		1800	

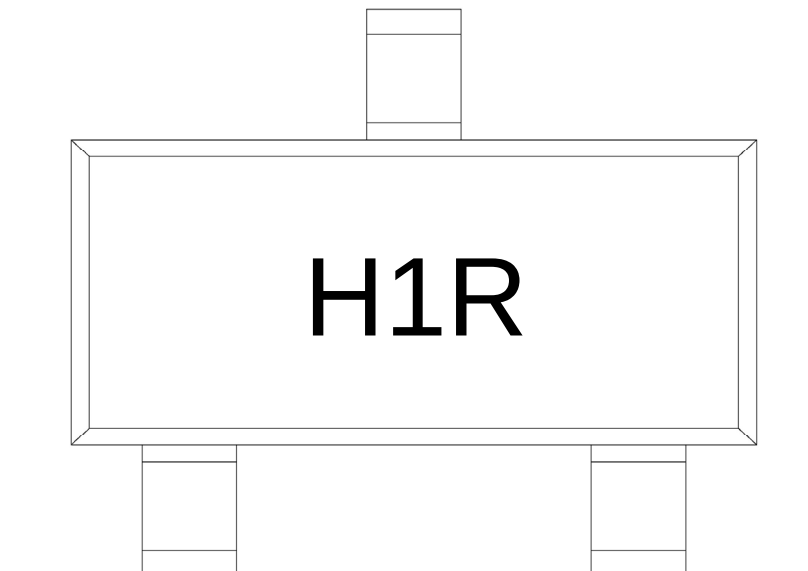
/ Electrical Characteristic Curve



/ Package Dimensions



/ Marking Instructions



H

1R

Note:

H Company Code

1R Product Type

ATA SHEET



c

00 220

90sec.

5±0.5sec.



sec



(unit: mm ³)
Outer Box 箱
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