F 2017

/ Descriptions

SOT-23 NPN

Silicon NPN transistor in a SOT-23 Plastic Package.

/ Features

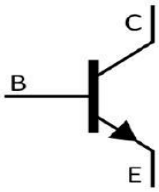
AEC-Q101

Low current, Low voltage, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

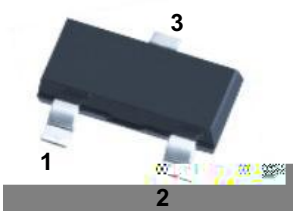
/ Applications

General power amplifier and switching application, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Emitter PIN 3 Collector

/ h_{FE} Classifications & Marking

h_{FE} Classifications Symbol	A	B
h_{FE} Range	110～220	200～450
Marking	1AQ	Q1B

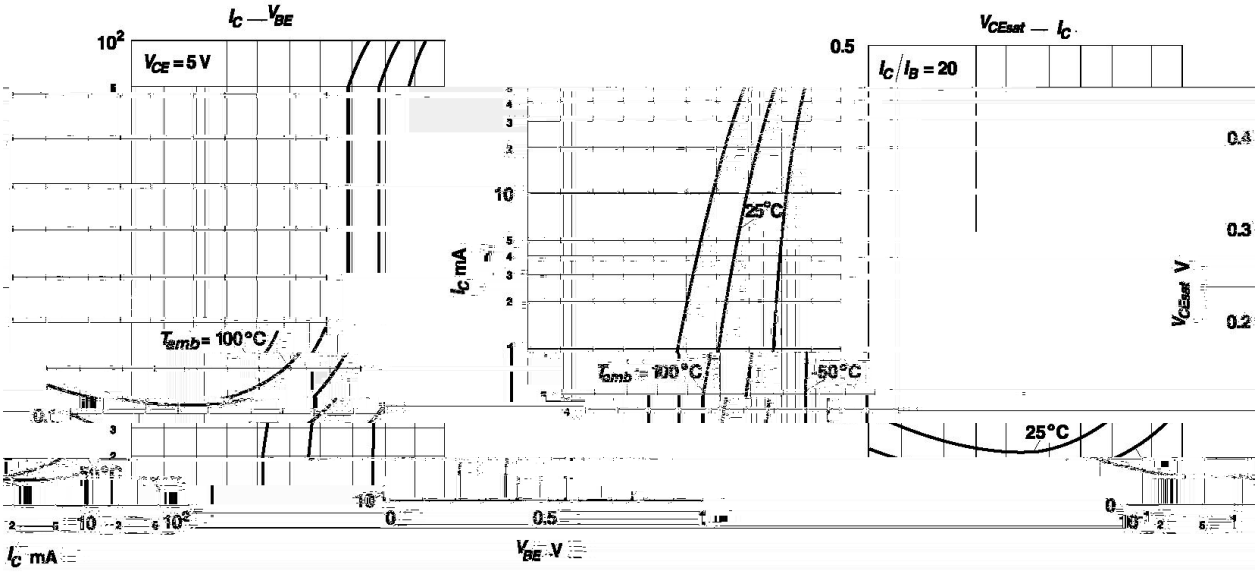
/ Absolute Maximum Ratings(Ta=25)

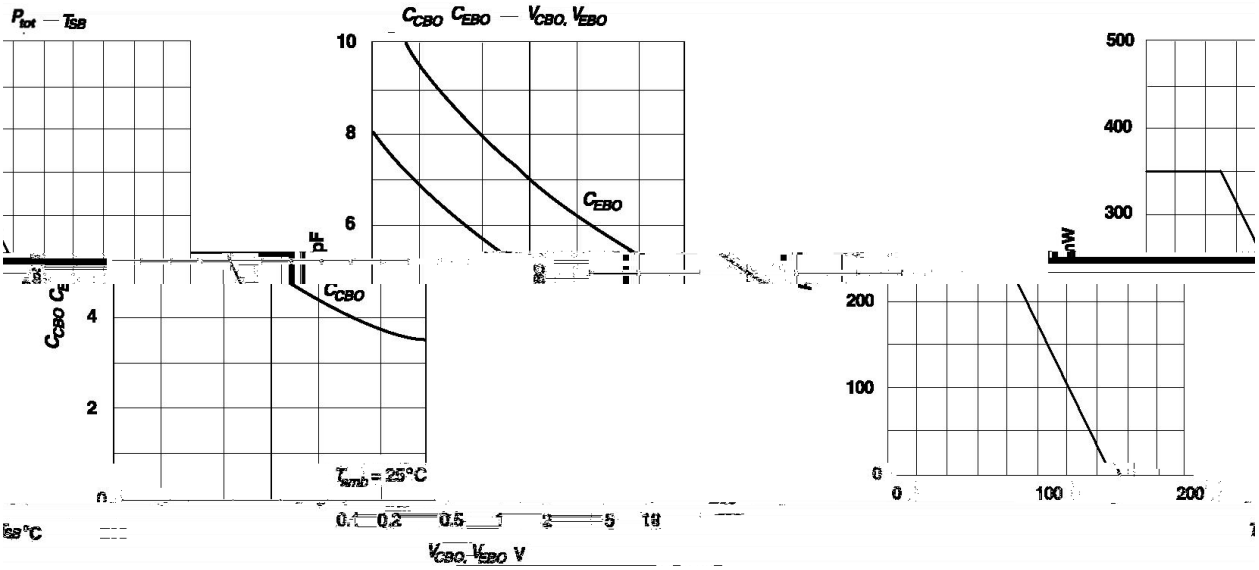
Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	80	V
Collector to Emitter Voltage	V_{CEO}	65	V
Emitter to Base Voltage	V_{EBO}	6.0	V
Collector Current - Continuous	I_C	100	mA
Collector Power Dissipation	P_C	350	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	-55 150	℃

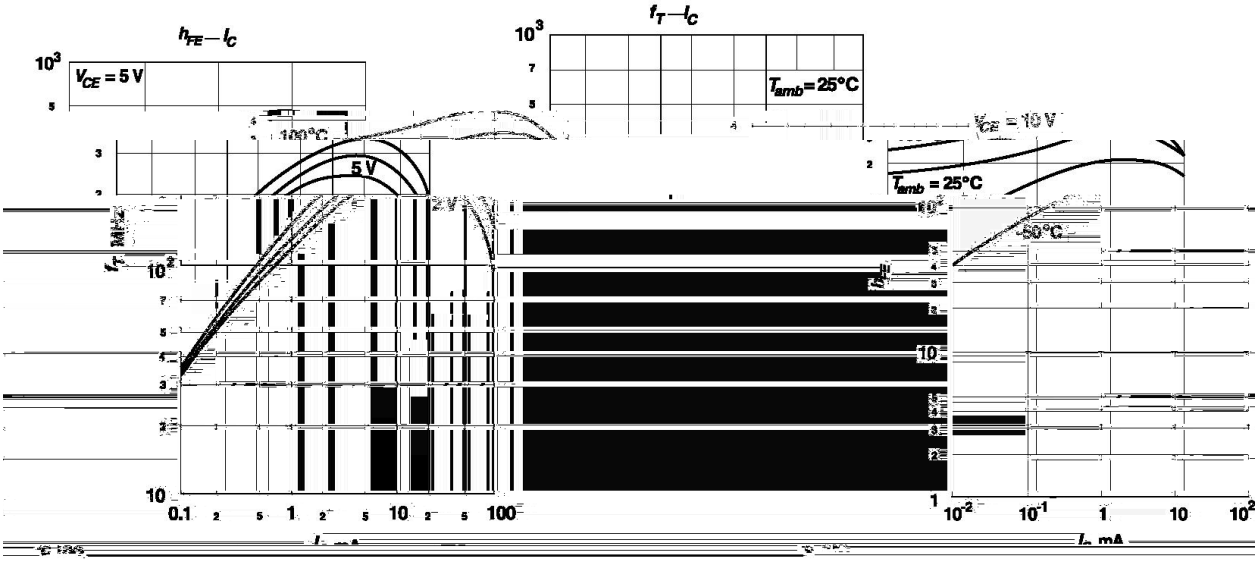
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	V_{CB}=30V I_E=0			0.015	μA
DC Current Gain	h_{FE}	V_{CE}=5.0V I_C=2.0mA	110		450	
Collector to Emitter Saturation Voltage	$V_{CE(sat)(1)}$	I_C=10mA I_B=0.5mA		0.09	0.25	V
	$V_{CE(sat)(2)}$	I_C=100mA I_B=5.0mA		0.2	0.6	V
Base to Emitter Saturation Voltage	$V_{BE(sat)(1)}$	I_C=10mA I_B=0.5mA		0.7		V
	$V_{BE(sat)(2)}$	I_C=100mA I_B=5.0mA		0.9		V
Base to Emitter Voltage	$V_{BE(1)}$	V_{CE}=5.0V I_C=2.0mA	0.58		0.7	V
	$V_{BE(2)}$	V_{CE}=5.0V I_C=10mA			0.75	V
Transition Frequency	f_T	V_{CE}=5.0V I_C=10mA f=100MHz		300		MHz
Collector Output Capacitance	C_{ob}	V_{CB}=10V I_E=0 f=1.0MHz		2.5	4.5	pF
Noise Figure	NF	V_{CE}=6.0V I_C=0.1mA R_g=10KΩ f=1.0KHz		1.0	10	dB

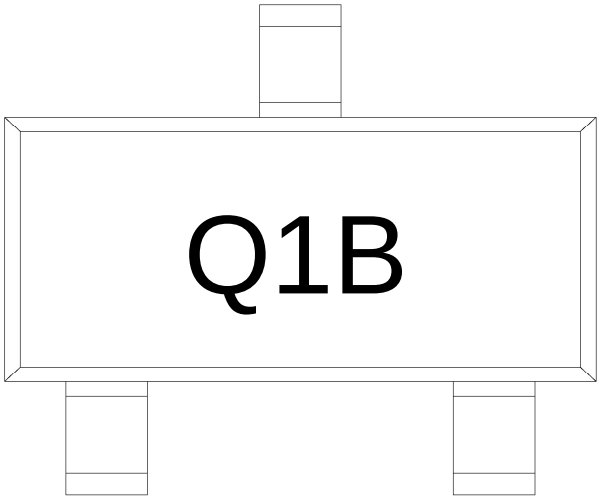
/ Electrical Characteristic Curve







/ Marking Instructions



Q

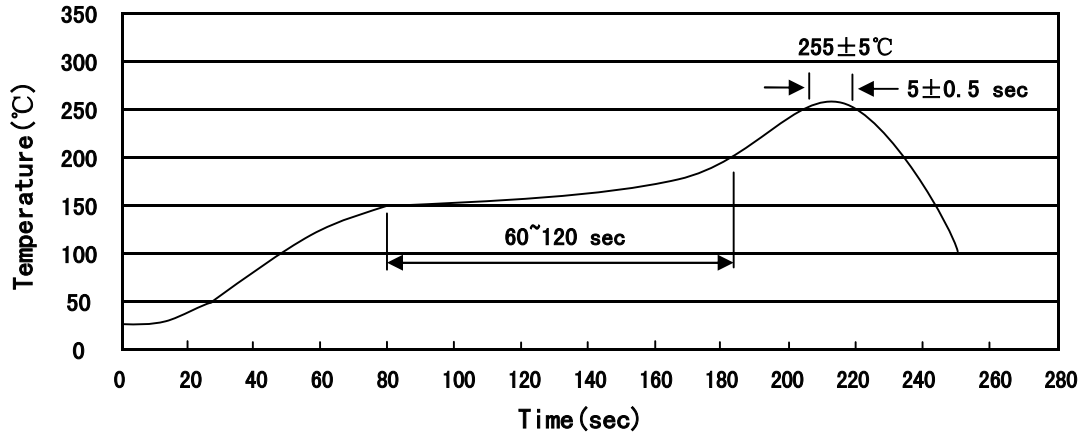
1B

Note:

Q: Automobile halogen-free product Code

1B: Product Type Code

( ) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

1、预热温度 150～200℃，时间 60～120sec;

2、峰值温度 255±5℃，时间持续为 5±0.5sec;

3、焊接制程冷却速度为 2～10℃/sec.

Note:

1.Preheating:150~200℃, Time:60~120sec.

2.Peak Temp.:255±5℃, Duration:5±0.5sec.

3. Cooling Speed: 2~10℃/sec.

/ Resistance to Soldering Heat Test Conditions

温度：260±5℃ 时间：10±1 sec. Temp.:260±5℃ Time:10±1 sec

/ Packaging SPEC.

卷盘包装 / 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