/ Descriptions

SOT-89 PNP

Silicon PNP transistor in a SOT-89 Plastic Package.

/ Features

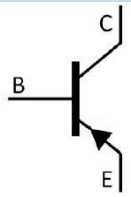
AEC-Q101

Low $V_{CE(sat)}$, high current, Qualified to AEC-Q101 Standards for High Reliability, HF Product.

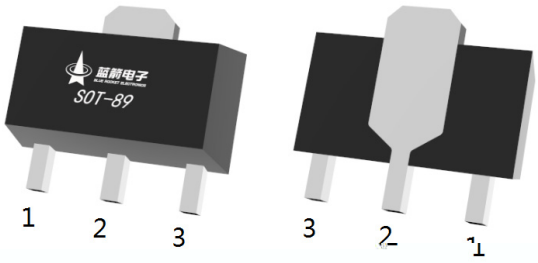
/ Applications

General purpose switching and muting, LCD back-lighting, supply line switching circuits, Meet the stringent requirements of automotive applications.

/ Equivalent Circuit



/ Pinning



PIN1 Base PIN 2 Collector PIN 3 Emitter

/ h_{FE} Classifications & Marking

Marking	QS46 ⁑

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	-50	V
Collector to Emitter Voltage	V_{CEO}	-50	V
Emitter to Base Voltage	V_{EBO}	-5	V
Collector Current - Continuous	I_C	-3	A
Peak collector current	I_{CM}	-5	A
Collector Base - Continuous	I_B	-0.5	A
Total power dissipation( )	P_{tot}( )	550	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-65 150	

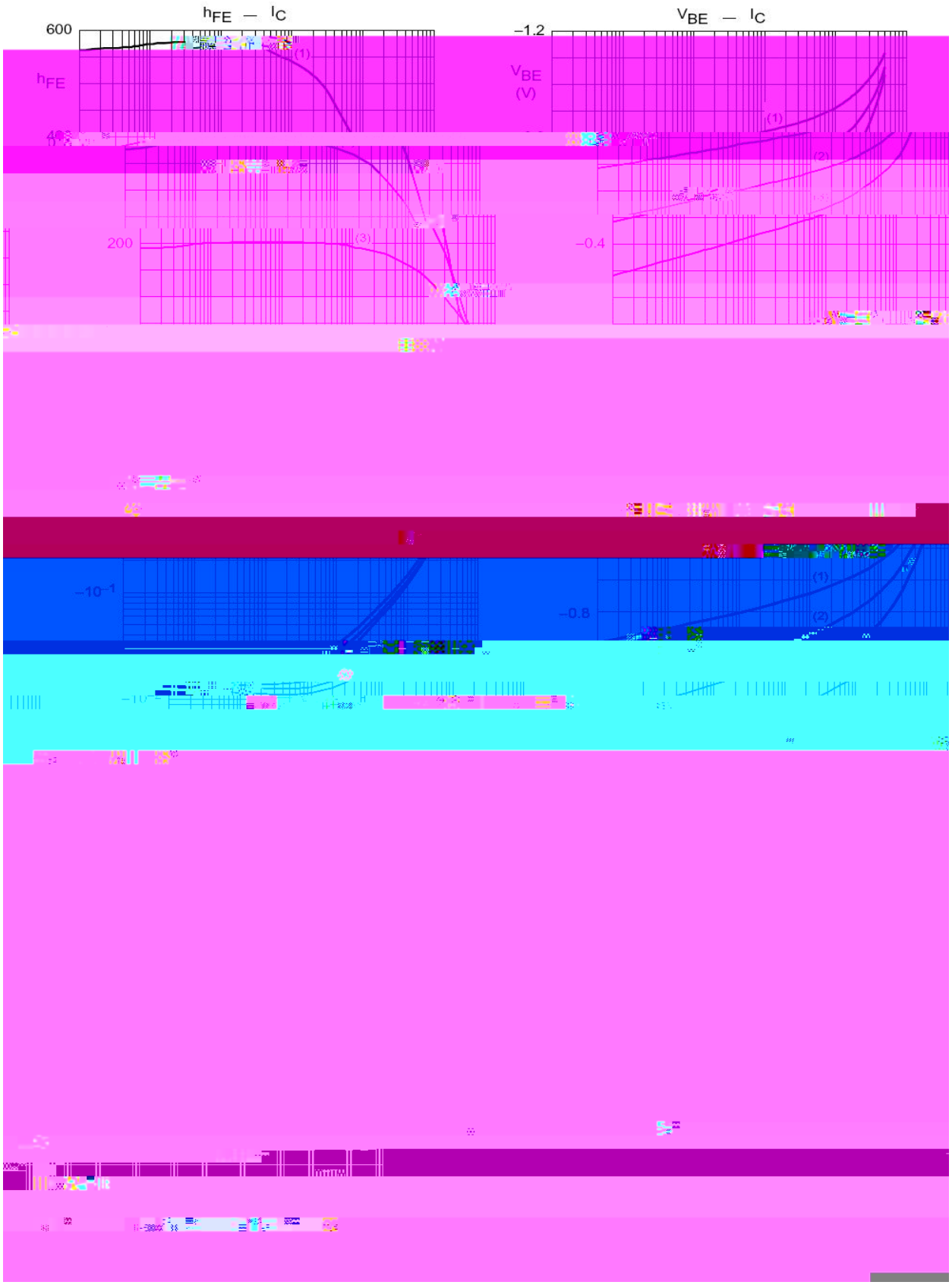
/ Electrical Characteristics(Ta=25)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	V_{CB}=-50V I_E=0			-100	nA
Collector Cut-Off Current	I_{CBO}	V_{CB}=-50V I_E=0 T_j=150			-50	μA
Collector cut-off current	I_{CES}	V_{CE}=-50V V_{BE}=0			-100	nA
Emitter Base Cut-Off Current	I_{EBO}	V_{EB}=-5.0V I_C=0			-100	nA
DC Current Gain	$h_{FE(1)}$	V_{CE}=-2.0V I_C=-0.1A	200			
	$h_{FE(2)}$	V_{CE}=-2.0V I_C=-0.5A	200			
	$h_{FE(3)}$*	V_{CE}=-2.0V I_C=-1.0A	200		450	
	$h_{FE(4)}$*	V_{CE}=-2.0V I_C=-2.0A	130			
	$h_{FE(5)}$*	V_{CE}=-2.0V I_C=-3.0A	80			
Collector to Emitter Saturation Voltage	$V_{CE(sat)\ (1)}$	I_C=-0.5A I_B=-50mA			-90	mV
	$V_{CE(sat)\ (2)}$	I_C=-2.0A I_B=-100mA			-320	mV
Equivalent on-resistance	$R_{CE(sat)}$*	I_C=-2.0A I_B=-200mA		90	135	mΩ
Base to Emitter Saturation Voltage	$V_{BE(sat)(1)}$	I_C=-2.0A I_B=-100mA			-1.1	V
	$V_{BE(sat)(2)}$*	I_C=-3.0A I_B=-300mA			-1.2	V
Base-emitter turn-on voltage	$V_{BE(ON)}$	V_{CE}=-2.0V I_C=-1.0A			-1.1	V
Transition Frequency	f_T	V_{CE}=-5.0V I_C=100mA f=100MHz	100			MHz
Collector capacitance	C_C	V_{CB}=-10V I_E=0 f=1.0MHz			35	pF

* ≤300μs,δ≤2.0%

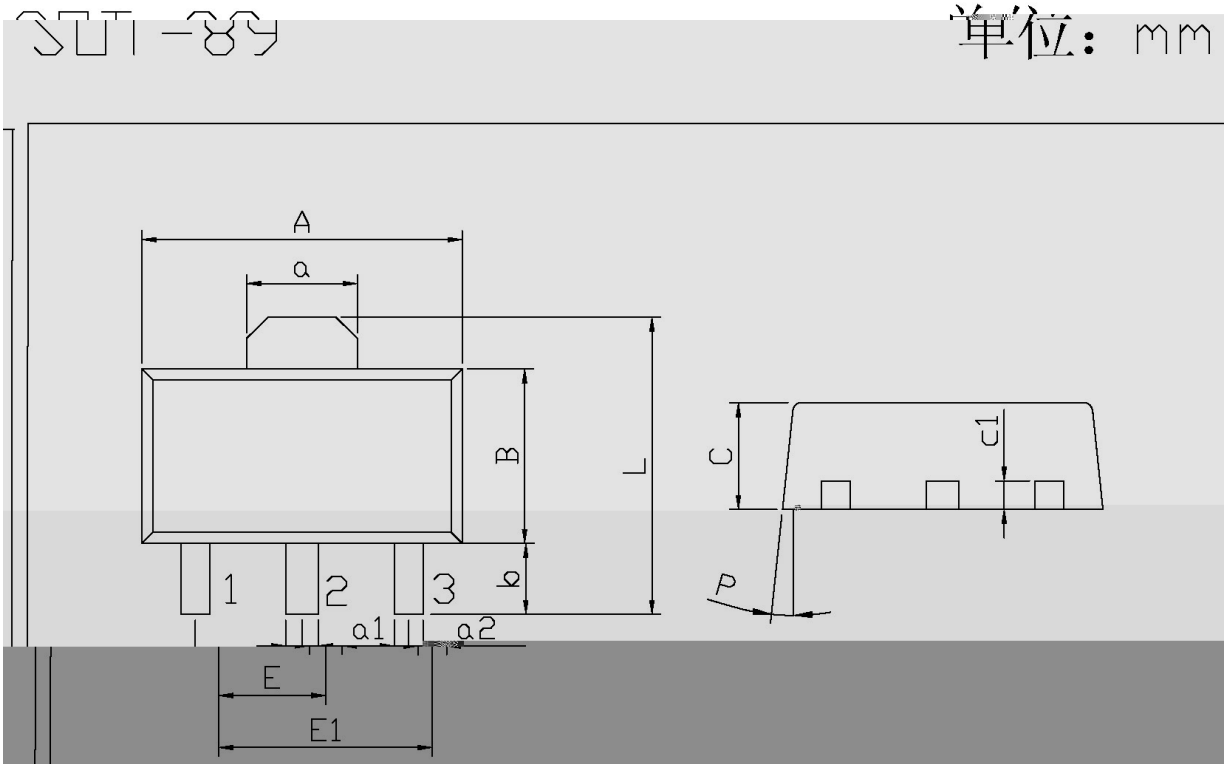
*pulse test: pulse width≤300μs, δ≤2.0%.

/ Electrical Characteristic Curve



/ Package Dimensions

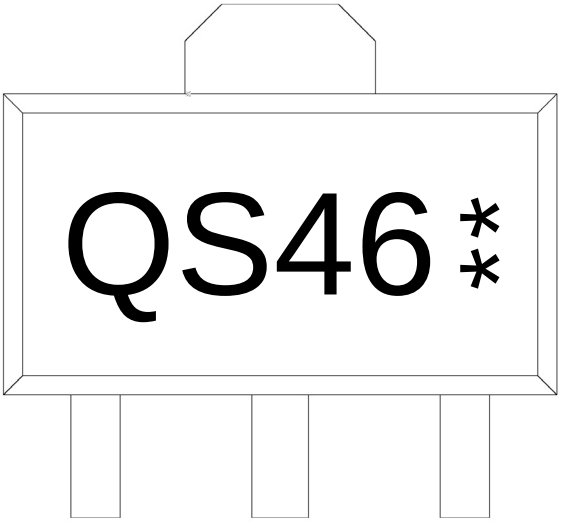
SOT-89 单位：mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
D	2.35	2.65	a2	0.38	0.50

E	1.5	1.6	P	5°
E1	3.0	3.2		
e	1.5	1.60		

/ Marking Instructions



Q

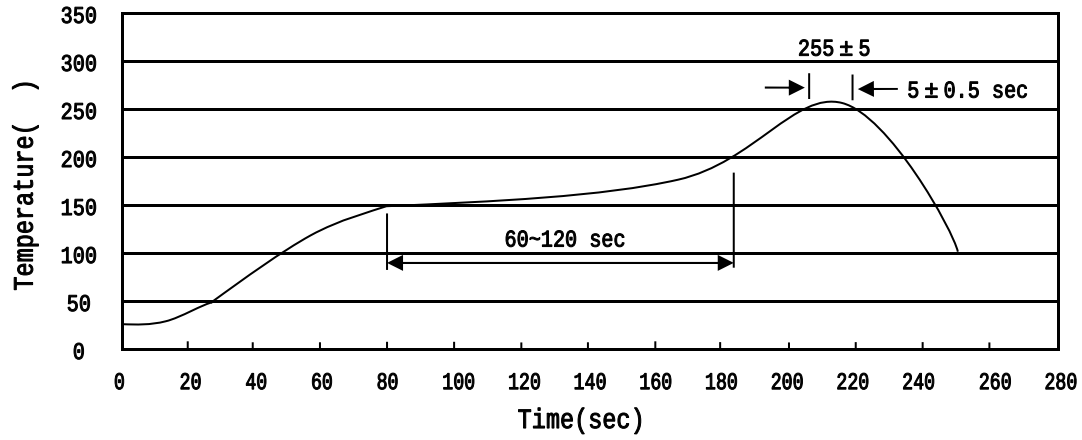
S46

**

Note:

Q:	Automobile halogen-free product Code
S46:	Product Type
**:	Lot No. Code, code change with Lot No

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



Note:

1		150	200		60	120sec;	1.Preheating:150~200 , Time:60~120sec.
2		255±5				5±0.5sec;	2.Peak Temp.:255±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	Units					Dimension		(unit mm³)
SOT-89	1,000	7	7,000	6	42,000	7 ×12	180×120×180	390×385×205

/ Notices