

5 Ø / Descriptions

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

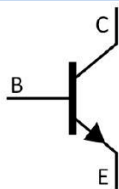
/“ / Features

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

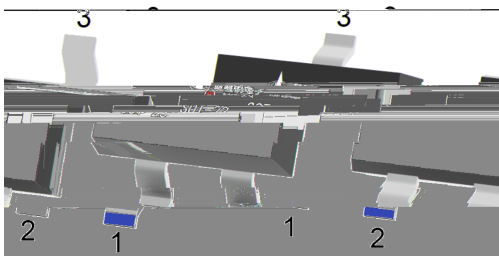
— ÷ / Applications

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

^ W] Ô / Equivalent Circuit



Ô æ / Pinning



PIN 1 Base PIN 2 Emitter PIN 3 Collector

Z ÜB , M V / h_{FE} Classifications & Marking

h_{FE} Range	>200
Marking	QU5

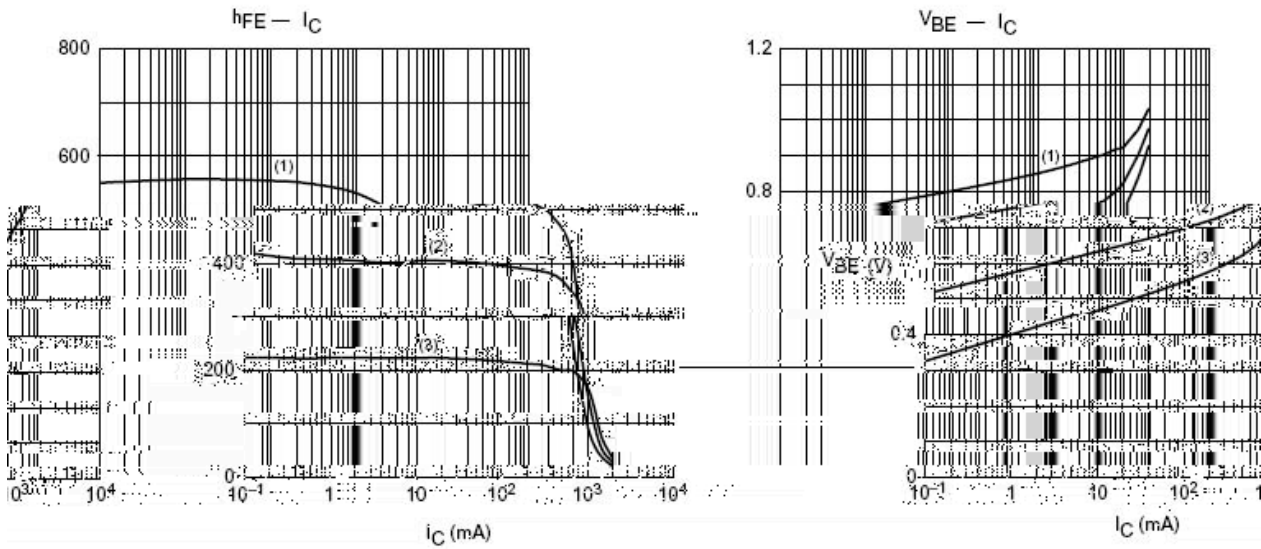
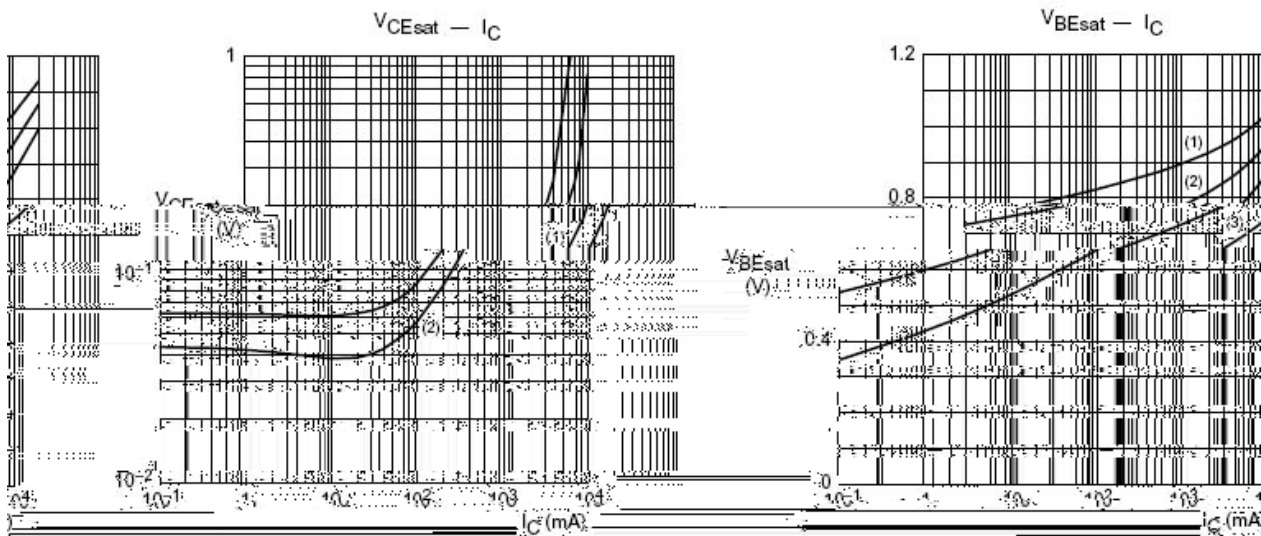
1. Absolute Maximum Ratings(Ta=25 ;)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	80	V
Collector to Emitter Voltage	V_{CEO}	60	V
Emitter to Base Voltage	V_{EBO}	5	V
Collector Current	I_C	1	A
Peak Collector Current	I_{CM}	2	A
Base Current	I_B	0.3	A
Peak Base Current	I_{BM}	1	A
Collector Power Dissipation	P_C	400	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

2. Electrical Characteristics(Ta=25 ;)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector Cut-Off Current	I_{CBO}	$V_{CB}=60V \quad I_E=0A$			100	nA
		$V_{CB}=60V \quad I_E=0A \quad T_j=150$			50	A
Collector Cut-Off Current	I_{CES}	$V_{CE}=60V \quad V_{BE}=0V$			100	nA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=5.0V \quad I_C=0A$			100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5.0V \quad I_C=500mA$	200	350		
	$h_{FE(2)}$	$V_{CE}=5.0V \quad I_C=1.0mA$	250	400		
	$h_{FE(3)}$	$V_{CE}=5.0V \quad I_C=1.0A$	100	150		
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=100mA \quad I_B=1.0mA$		90	110	mV
	$V_{CE(sat)(2)}$	$I_C=500mA \quad I_B=50mA$		110	140	mV
	$V_{CE(sat)(3)}$	$I_C=1.0A \quad I_B=100mA$		200	250	mV
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.0A \quad I_B=50mA$		0.95	1.1	V
Base-Emitter Voltage	V_{BE}	$V_{CE}=5.0V \quad I_C=1.0A$		0.82	0.9	V
Transition Frequency	f_T	$V_{CE}=10V \quad I_C=50mA \quad f=100MHz$	150	220		MHz
Output Capacitance	C_C	$V_{CB}=10V \quad I_E=0 \quad f=1.0MHz$		5.5	10	pF

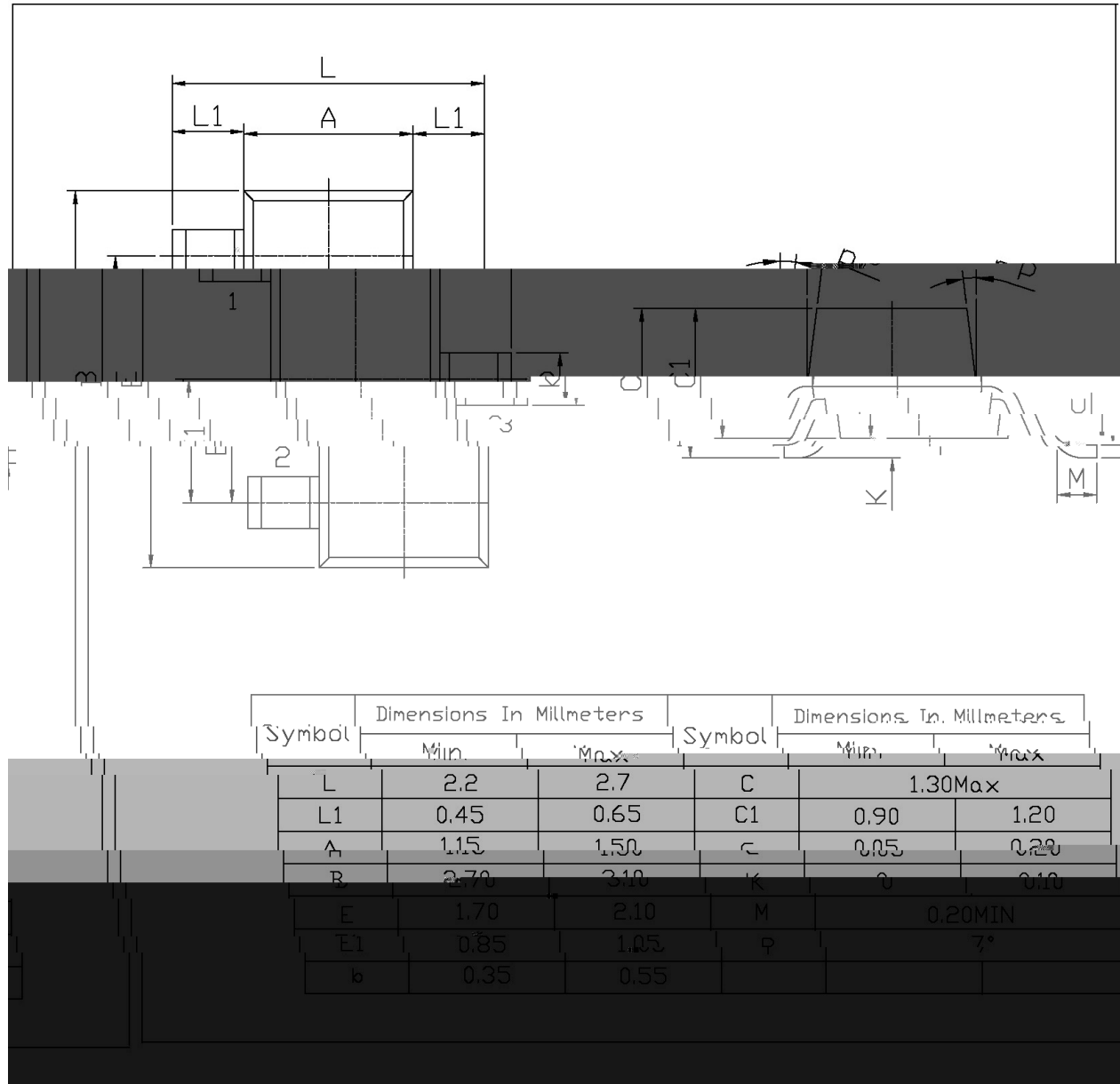
电气特性 / Electrical Characteristic Curve

 $V_{CE} = 5 V.$ (1) $T_{amb} = 100^\circ C.$ (2) $T_{amb} = 25^\circ C.$ (3) $T_{amb} = -55^\circ C.$ $V_{CE} = 5 V.$ (1) $T_{amb} = -55^\circ C.$ (2) $T_{amb} = 25^\circ C.$ (3) $T_{amb} = 100^\circ C.$  $T_{amb} = 25^\circ C.$ (1) $I_C/I_B = 100.$ (2) $I_C/I_B = 50.$ $I_C/I_B = 20.$ (1) $T_{amb} = -55^\circ C.$ (2) $T_{amb} = 25^\circ C.$ (3) $T_{amb} = 100^\circ C.$

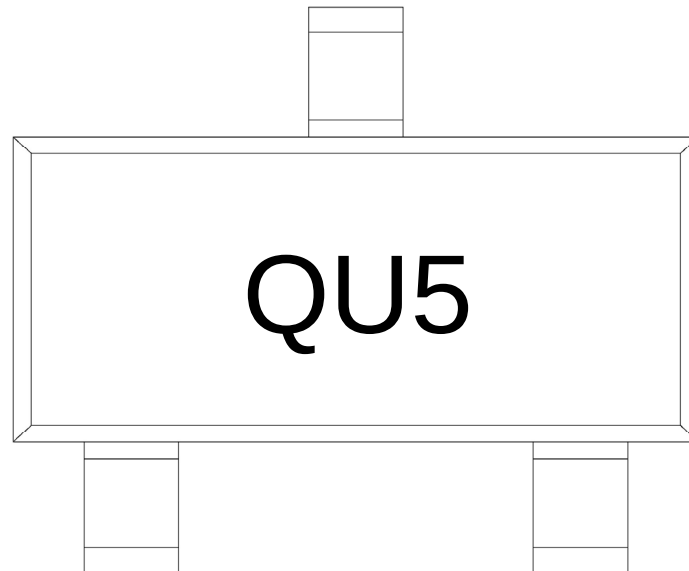
Ø =) ⌀ / Package Dimensions

SOT-23

单位：mm



, M y / Marking Instructions



Q

U5

Note:

Q: Automobile halogen-free product Code

U5 Product Type Code

WD t ¢ (x/) / :KSVKXGZ[XK 6XULORK LUX /8 8KLRU] 9URJKXOTM 6

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