

/ Descriptions

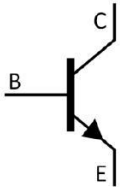
TO-92

NPN

Silicon NPN transistor in a TO-92 Plastic Package.

/ FeaturesHigh P_C , low $V_{CE(sat)}$, high current switching.**/ Applications**

Medium power switching and muting, linear regulators, LCD back-lighting, supply line switching circuits.

/ Equivalent Circuit**/ Pinning**

PIN1 Base PIN 2 Collector PIN 3 Emitter

/ hFE Classifications & Marking

See Marking Instructions.

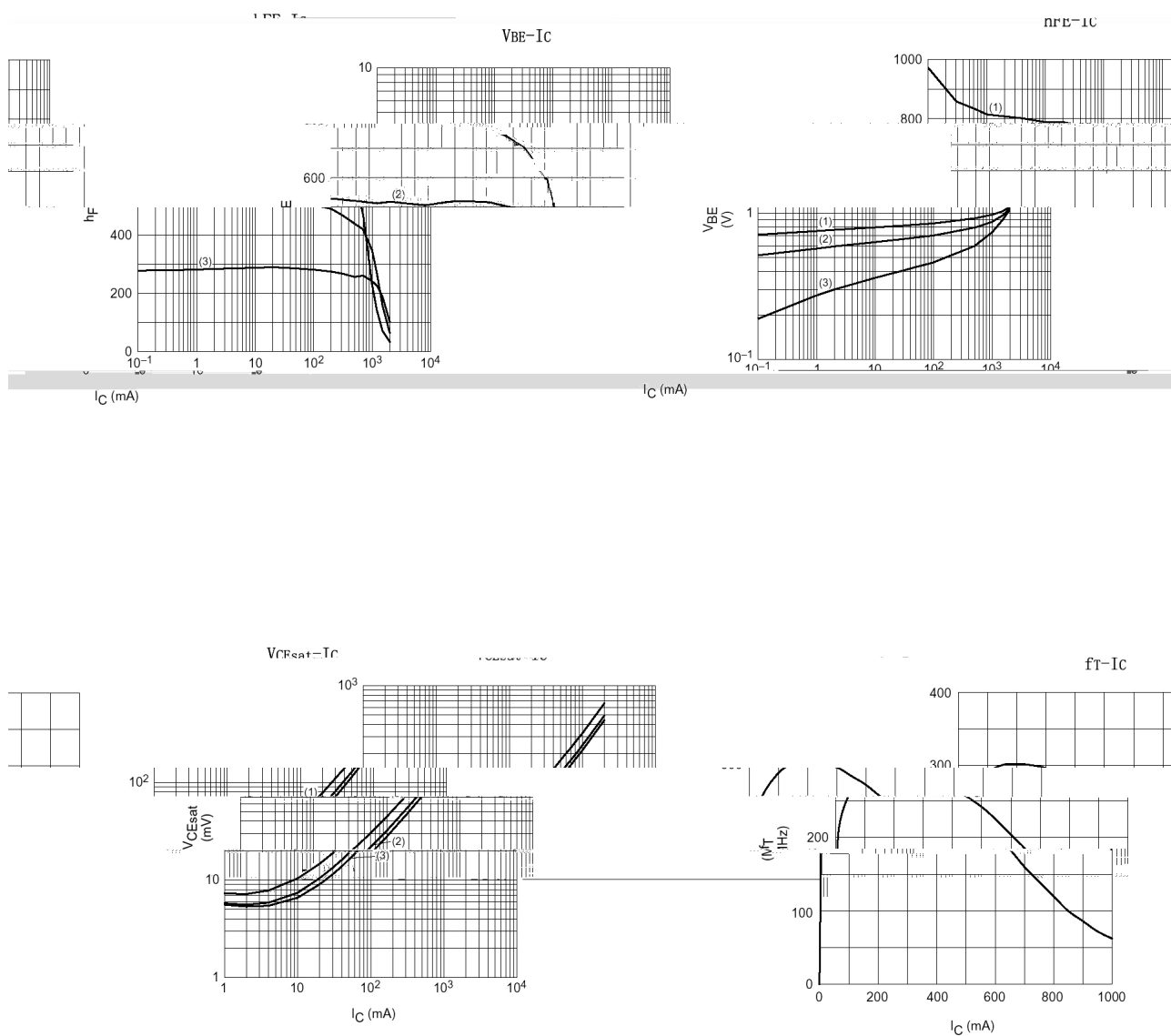
/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	40	V
Collector to Emitter Voltage	V_{CEO}	40	V
Emitter to Base Voltage	V_{EBO}	5.0	V
Collector Current - Continuous	I_C	1.0	A
Peak Collector Current	I_{CM}	2.0	A
Peak Base Current	I_{BM}	1.0	A
Collector Power Dissipation	P_C	830	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}	$V_{CB}=40V$ $I_E=0$			0.1	μA
Collector Cut-Off Current	I_{CEO}	$V_{CE}=30V$ $I_B=0$			0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=5.0V$ $I_C=0$			0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5.0V$ $I_C=500mA$	300		900	
	$h_{FE(2)}$	$V_{CE}=5.0V$ $I_C=1.0mA$	300			
	$h_{FE(3)}$	$V_{CE}=5.0V$ $I_C=1.0A$	200			
Collector to Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=100mA$ $I_B=1.0mA$			200	mV
	$V_{CE(sat)(2)}$	$I_C=500mA$ $I_B=50mA$			250	mV
	$V_{CE(sat)(3)}$	$I_C=1.0A$ $I_B=100mA$			500	mV
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=1.0A$ $I_B=100mA$			1.2	V
Base to Emitter Voltage	V_{BE}	$V_{CE}=5.0V$ $I_C=1.0A$			1.1	V
Transition Frequency	f_T	$V_{CE}=10V$ $I_C=50mA$ $f=100MHz$	150			MHz
Collector Capacitance	C_C	$V_{CB}=10V$ $I_E=0$ $f=1.0MHz$			10	pF

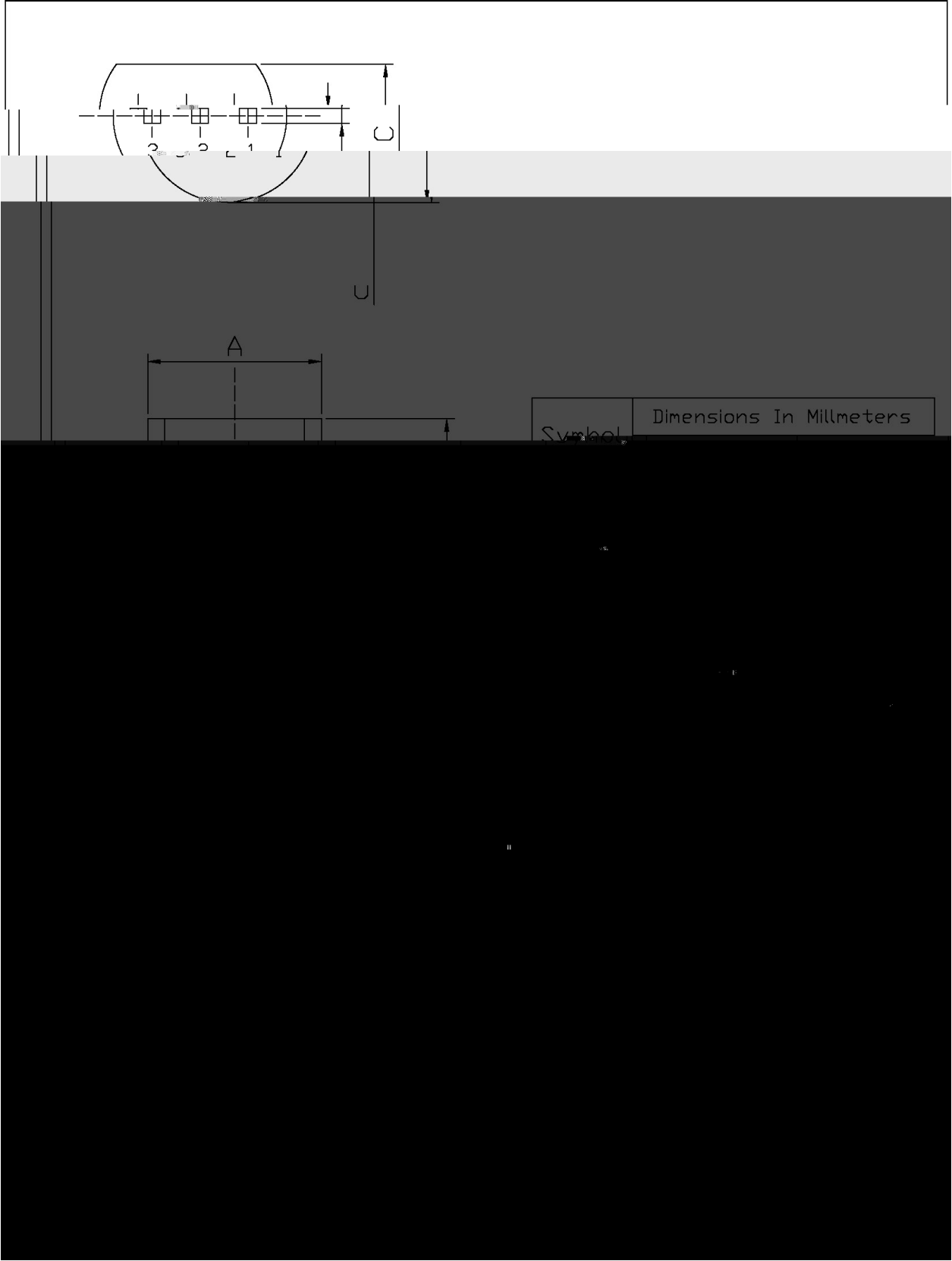
/ Electrical Characteristic Curve



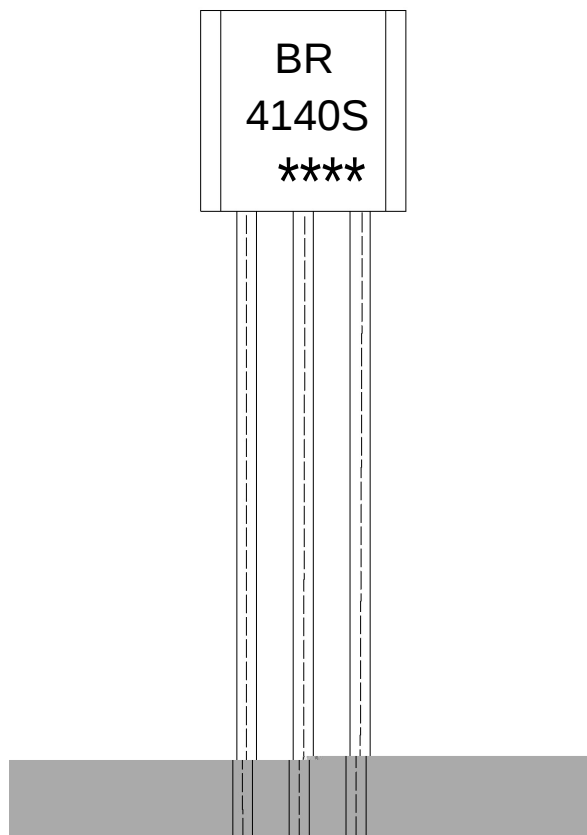
/ Package Dimensions

TO-92

Unit: mm



/ Marking Instructions



BR:

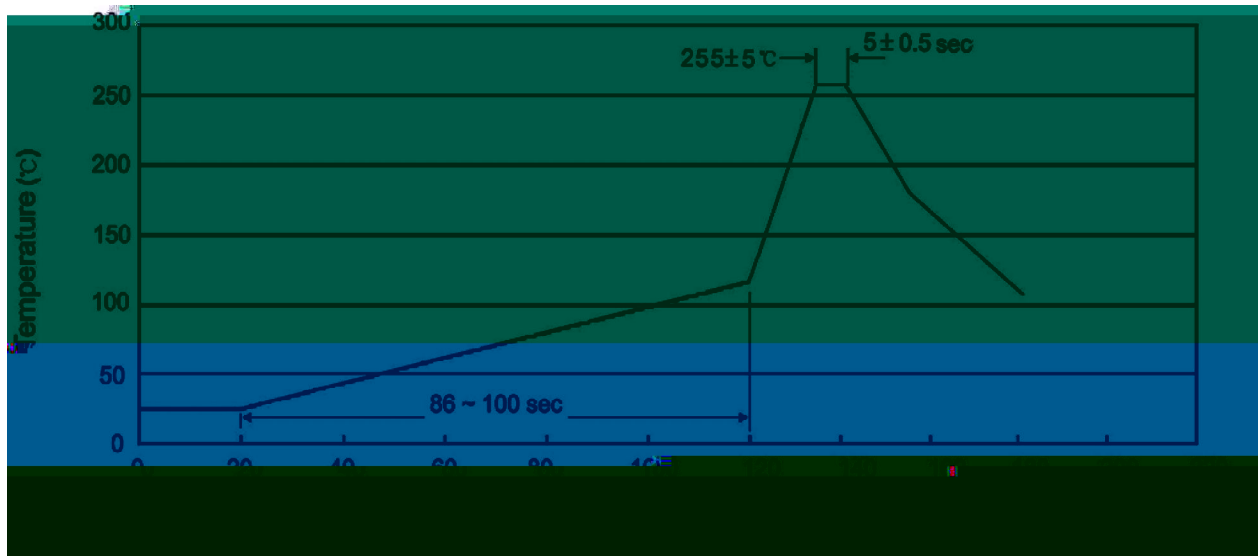
4140S

Note:

BR: Company Code.

4140S: Product Type.

****: Lot No. Code,code change with Lot No.


() / Temperature Profile for Dip Soldering(Pb-Free)


Note:

- | | | | | | |
|---|-------|-----|-----------|---|--------------------------------------|
| 1 | 25 | 150 | 60 | 90sec; | 1.Preheating:25~150 , Time:60~90sec. |
| 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

270±5 10±1 sec. Temp:270±5 Time:10±1 sec

/ Packaging SPEC.
/ BULK

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)		
	Units/Bag 只/袋	Bags/Inner Box 袋/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Bag 袋	Inner Box 盒	Outer Box 箱
TO-92	1,000	10	10,000	5	50,000	135×190	237×172×102	560×245×195
	1,000	10	10,000	10	100,000	135×190	237×172×102	560×245×375

/ AMMO

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm3)	
	Units/tape 只/纸带	Tape/Inner Box 纸带/盒	Rows/Inner Box 纸带层/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Inner Box 盒	Outer Box 箱
TO-92	3,000	1	120	10	30,000	328×230×42	小箱 480×346×235, 大箱 547×407×268

/ Notices