

/ Descriptions

TO-92 NPN Silicon NPN transistor in a TO-92 Plastic Package.

/ Features

High current gain.

/ Applications

Applications requiring extremely high current gain device designed.

/ Equivalent Circuit



/ Pinning



PIN1 Collector PIN 2 Base PIN 3 Emitter

/ hFE Classifications & Marking

See Marking Instructions.

/ Absolute Maximum Ratings(Ta=25)

Parameter	Symbol	Rating	Unit
Collector to Base Voltage	V_{CBO}	30	V
Collector to Emitter Voltage	V_{CEO}	30	V
Emitter to Base Voltage	V_{EBO}	10	V
Collector Current - Continuous	I_C	500	mA
Collector Power Dissipation	P_C	625	mW
Junction Temperature	T_j	150	
Storage Temperature Range	T_{stg}	-55 150	

/ Electrical Characteristics(Ta=25)

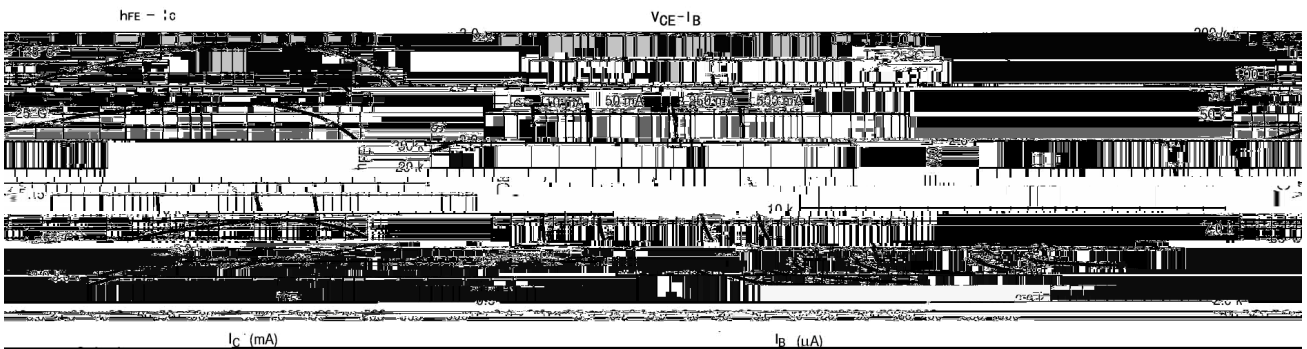
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=100\text{ A}$ $I_B=0$	30			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=30V$ $I_E=0$			0.1	A
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=10V$ $I_C=0$			0.1	A
DC Current Gain	$h_{FE(1)}$	$V_{CE}=5.0V$ $I_C=10mA$	5000			
	$h_{FE(2)}$	$V_{CE}=5.0V$ $I_C=100mA$	10000			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=100mA$ $I_B=0.1mA$			1.5	V
Base to Emitter Voltage	V_{BE}	$V_{CE}=5.0V$ $I_C=100mA$			2.0	V
Transition Frequency	f_T	$V_{CE}=10V$ $f=100MHz$ $I_C=10mA$	125			MHz

/ Electrical Characteristic Curve



V_R (VOLTS)

I_C (mA)

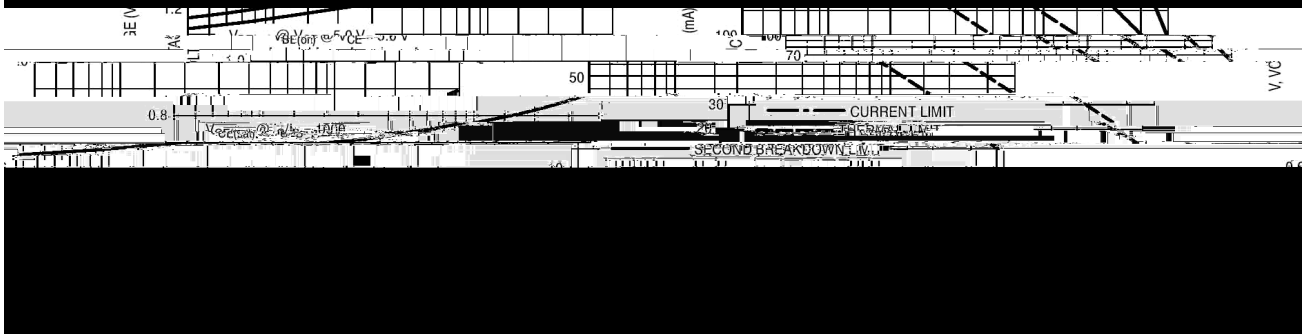


$h_{FE} - I_C$

$V_{CE} - I_B$

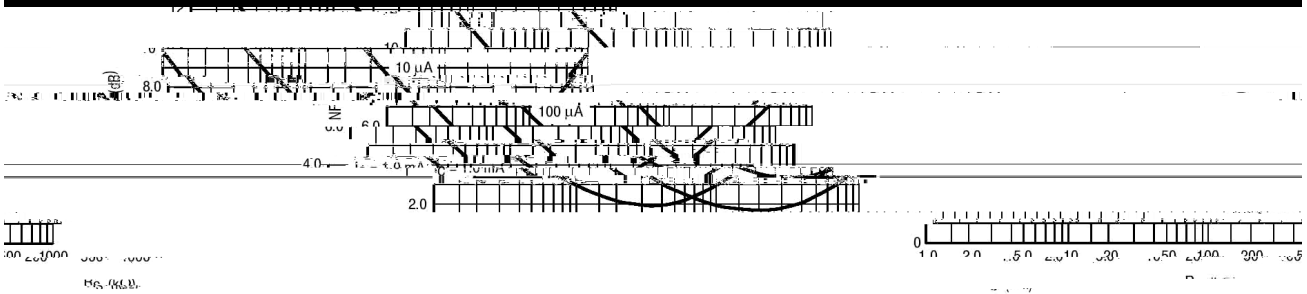
I_C (mA)

I_B (μA)



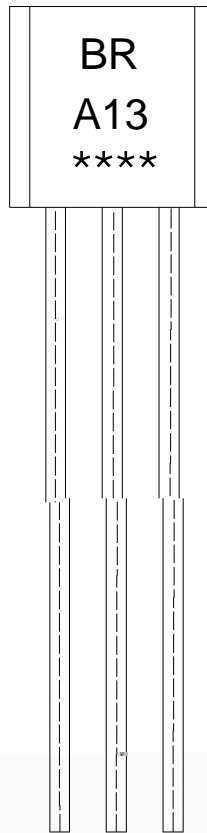
V_{CE}

(mA)



h_{FE}

/ Marking Instructions



BR:

A13

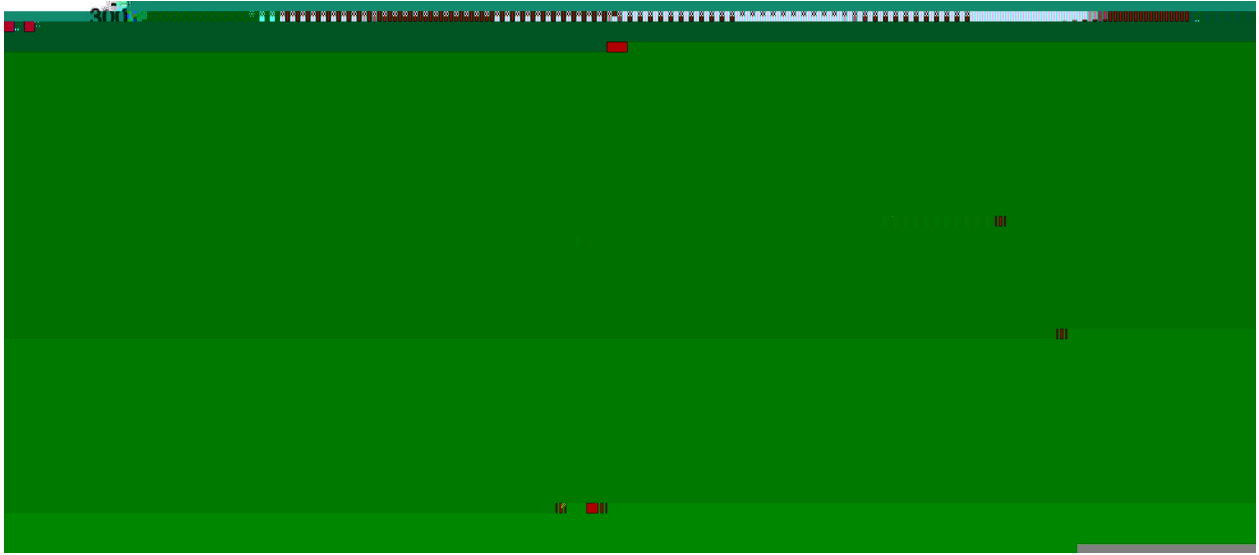
Note:

BR: Company Code.

A13: 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	Units					Dimension (unit mm3)		
	Units/Bag /	Bags/Inner Box /	Units/Inner Box /	Inner Boxes/Outer Box /	Units/Outer Box /	Bag	Inner Box	Outer Box
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	Units			Dimension (unit mm3)
	Units/tape /	Tape/Inner Box /	Rows/Inner Box	