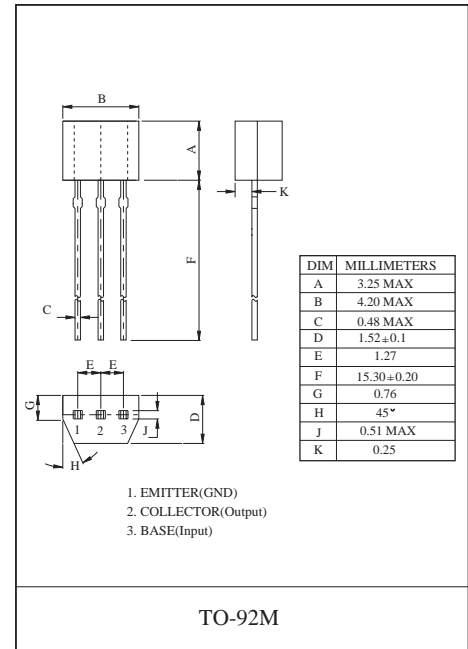


# Bias Resistor Transistor

## NPN Silicon Surface Mount Transistor with Monolithic Bias Resistor Network

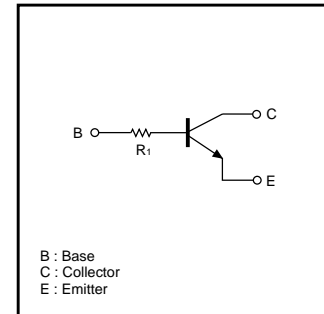
This new series of digital transistors is designed to replace a single device and its external resistor bias network. The BRT (Bias Resistor Transistor) contains a single transistor with a monolithic bias network resistor. The BRT eliminates these individual components by integrating them into a single device. The use of a BRT can reduce both system cost and board space.

- Simplifies Circuit Design
- Reduces Board Space and Component Count



### Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	Value	Unit
Supply voltage	$V_{CC}$	50	V
Input voltage	$V_{IN}$	-5 ~30	V
Output current	$I_O$	100	mA
	$I_{C(MAX)}$	100	
Power dissipation	$P_d$	300	mW
Junction temperature	$T_j$	150	°C
Storage temperature	$T_{stg}$	-55~150	°C



### Electrical Characteristics(Ta=25°C unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	$V_{(BR)CBO}$	$I_C=50\mu A, I_E=0$	50			V
Collector- emitter breakdown voltage	$V_{(BR)CEO}$	$I_C=1mA, I_B=0$	50			V
Emitter- base breakdown voltage	$V_{(BR)EBO}$	$I_E=50\mu A, I_C=0$	5			V
Collector cut- off current	$I_{CBO}$	$V_{CB}=50V, I_E=0$			0.5	$\mu A$
Emitter cut- off current	$I_{EBO}$	$V_{EB}=4V, I_C=0$			0.5	$\mu A$
DC current gain	$h_{FE}$	$V_{CE}=5V, I_C=1mA$	100	300	600	
Collector- emitter saturation voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=1mA$			0.3	V
Transition frequency	$f_T$	$V_{CE}=10V, I_E=-5mA, f=100MHz$	250			MHz
Input resistor	$R_1$		7	10	13	$K\Omega$

## Typical Characteristics

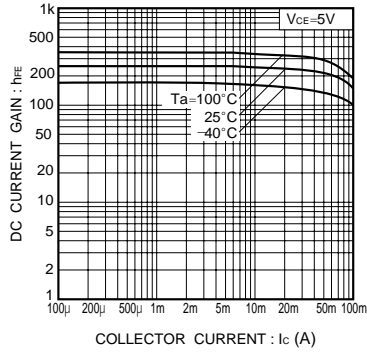


Fig.1 DC current gain vs. collector current

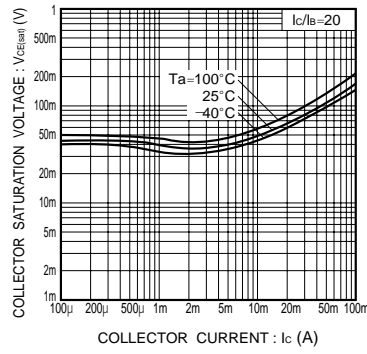


Fig.2 Collector-emitter saturation voltage vs. collector current