

**KSR1002**

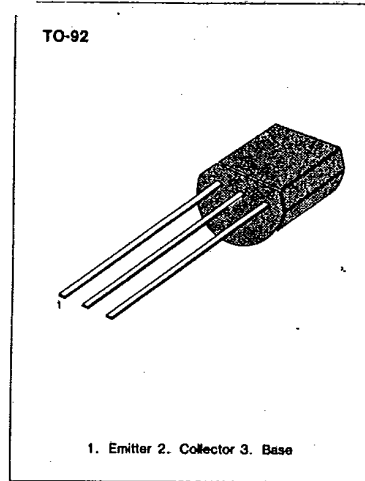
**NPN EPITAXIAL SILICON TRANSISTOR**

**SWITCHING APPLICATION (Bias Resistor Built In)**

- Switching circuit, Inverter, Interface circuit Driver circuit
- Built in bias Resistor ( $R_1=10K\Omega$ ,  $R_2=10K\Omega$ )
- Complement to KSR2002

**ABSOLUTE MAXIMUM RATINGS ( $T_a=25^\circ C$ )**

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	50	V
Collector-Emitter Voltage	$V_{CEO}$	50	V
Emitter-Base Voltage	$V_{EBO}$	10	V
Collector Current	$I_C$	100	mA
Collector Dissipation	$P_C$	300	mW
Junction Temperature	$T_J$	150	$^\circ C$
Storage Temperature	$T_{stg}$	-55 - 150	$^\circ C$

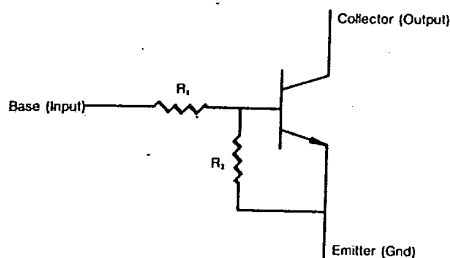


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**ELECTRICAL CHARACTERISTICS ( $T_a=25^\circ C$ )**

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	$BV_{CBO}$	$I_C=10\mu A, I_E=0$	50			V
Collector-Emitter Breakdown Voltage	$BV_{CEO}$	$I_C=100\mu A, I_B=0$	50			V
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=40V, I_E=0$			0.1	$\mu A$
DC Current Gain	$h_{FE}$	$V_{CE}=5V, I_C=5mA$	30			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10mA, I_B=0.5mA$			0.3	V
Current Gain-Bandwidth Product	$f_T$	$V_{CE}=5mA, I_C=10V$		250		MHz
Output Capacitance	$C_{ob}$	$V_{CB}=10V, I_E=0$ $f=1.0MHz$		3.7		pF
Input Off Voltage	$V_{i(off)}$	$V_{CE}=5V, I_C=100\mu A$	0.5			V
Input On Voltage	$V_{i(on)}$	$V_{CE}=0.3V, I_C=10mA$			3	V
Input Resistor	$R_1$		7	10	13	$K\Omega$
Resistor Ratio	$R_1/R_2$		0.9	1	1.1	

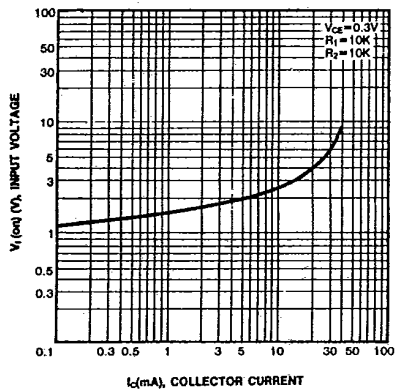
**Equivalent Circuit**



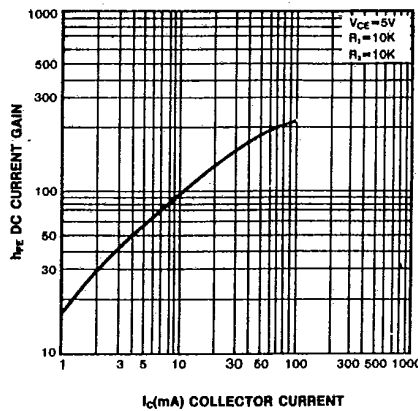
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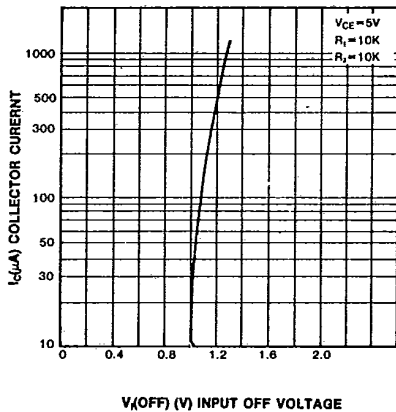
**INPUT ON VOLTAGE**



**DC CURRENT GAIN**



**INPUT OFF VOLTAGE**



**POWER DERATING**

