

KSR1005

NPN EPITAXIAL SILICON TRANSISTOR

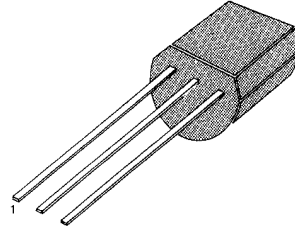
SWITCHING APPLICATION (Bias Resistor Built In)

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor ($R_1=4.7k\Omega$, $R_2=10k\Omega$)
- Complement to KSR2005

ABSOLUTE MAXIMUM RATINGS ($T_A=25^\circ\text{C}$)

Characteristic	Symbol	Rating	Unit
Collector-Base Voltage	V_{CB0}	50	V
Collector-Emitter Voltage	V_{CE0}	50	V
Emitter-Base Voltage	V_{EB0}	10	V
Collector Current	I_C	100	mA
Collector Dissipation	P_C	300	mW
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55 ~ 150	$^\circ\text{C}$

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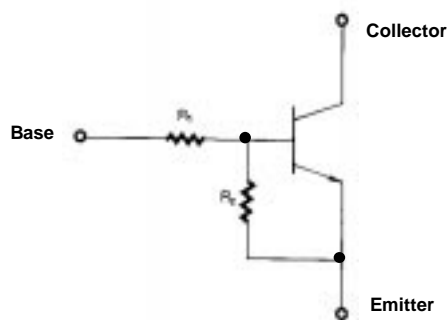


1. Emitter 2. Collector 3. Base

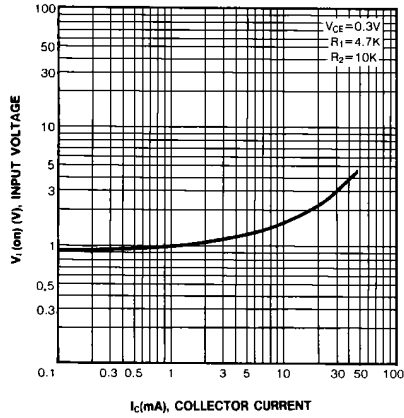
ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage	BV_{CB0}	$I_C=10\mu\text{A}$, $I_E=0$	50			V
Collector-Emitter Breakdown Voltage	BV_{CE0}	$I_C=100\mu\text{A}$, $I_B=0$	50			V
Collector Cut-off Current	I_{CB0}	$V_{CB}=40\text{V}$, $I_E=0$			0.1	μA
DC Current Gain	h_{FE}	$V_{CE}=5\text{V}$, $I_C=5\text{mA}$	30			
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=10\text{mA}$, $I_B=0.5\text{mA}$			0.3	V
Output Capacitance	C_{OB}	$V_{CE}=10\text{mA}$, $I_E=0$ $f=1\text{MHz}$		3.7		pF
Current Gain-Bandwidth Product	f_T	$V_{CE}=10\text{V}$, $I_C=5\text{mA}$		250		MHz
Input Off Voltage	$V_I(\text{off})$	$V_{CE}=5\text{V}$, $I_C=100\mu\text{A}$	0.3			V
Input On Voltage	$V_I(\text{on})$	$V_{CE}=0.3\text{V}$, $I_C=20\text{mA}$			2.5	V
Input Resistor	R_1		3.2	4.7	6.2	$k\Omega$
Resistor Ratio	R_1/R_2		0.42	0.47	0.52	

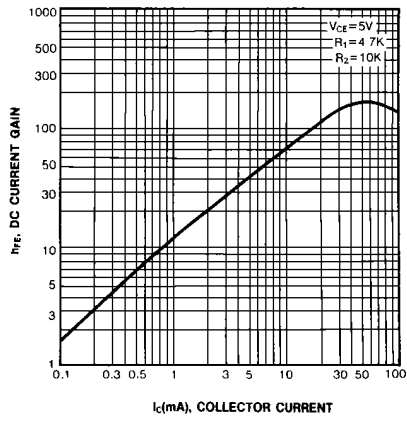
Equivalent Circuit



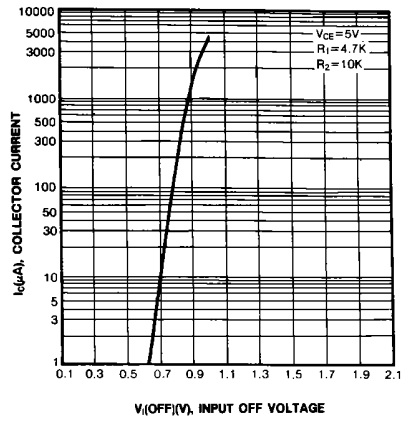
INPUT ON VOLTAGE



DC CURRENT GAIN



INPUT OFF VOLTAGE



POWER DERATING

