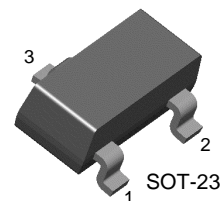


## KSR1104

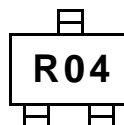
### Switching Application (Bias Resistor Built In)

- Switching circuit, Inverter, Interface circuit, Driver Circuit
- Built in bias Resistor ( $R_1 = 47K\Omega$ ,  $R_2 = 47K\Omega$ )
- Complement to KSR2104

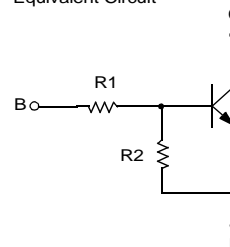


1. Base 2. Emitter 3. Collector

Marking



Equivalent Circuit



### NPN Epitaxial Silicon Transistor

#### Absolute Maximum Ratings $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Value	Units
$V_{CB0}$	Collector-Base Voltage	50	V
$V_{CEO}$	Collector-Emitter Voltage	50	V
$V_{EBO}$	Emitter-Base Voltage	10	V
$I_C$	Collector Current	100	mA
$P_C$	Collector Power Dissipation	200	mW
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{STG}$	Storage Temperature	-55 ~ 150	$^\circ\text{C}$

#### Electrical Characteristics $T_a = 25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
$BV_{CB0}$	Collector-Base Breakdown Voltage	$I_C = 10\mu\text{A}$ , $I_E = 0$	50			V
$BV_{CEO}$	Collector-Emitter Breakdown Voltage	$I_C = 100\mu\text{A}$ , $I_B = 0$	50			V
$I_{CBO}$	Collector Cut-off Current	$V_{CB} = 40\text{V}$ , $I_E = 0$			0.1	$\mu\text{A}$
$h_{FE}$	DC Current Gain	$V_{CE} = 5\text{V}$ , $I_C = 5\text{mA}$	68			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = 10\text{mA}$ , $I_B = 0.5\text{mA}$			0.3	V
$f_T$	Current Gain-Bandwidth Product	$V_{CE} = 10\text{V}$ , $I_C = 5\text{mA}$		250		MHz
$C_{ob}$	Output Capacitance	$V_{CB} = 10\text{V}$ , $I_E = 0$ $f = 1.0\text{MHz}$		3.7		pF
$V_I(\text{off})$	Input Off Voltage	$V_{CE} = 5\text{V}$ , $I_C = 100\mu\text{A}$	0.5			V
$V_I(\text{on})$	Input On Voltage	$V_{CE} = 0.3\text{V}$ , $I_C = 2\text{mA}$			3	V
$R_1$	Input Resistor		32	47	62	$K\Omega$
$R_1/R_2$	Resistor Ratio		0.9	1	1.1	

# Typical Characteristics

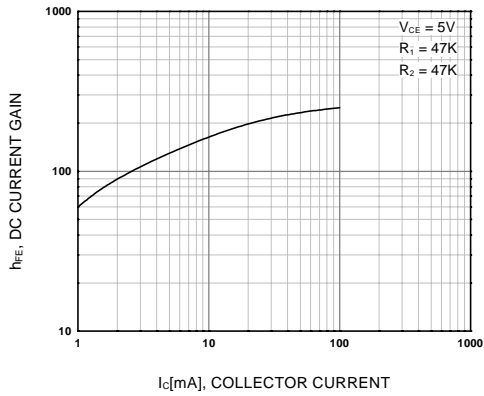


Figure 1. DC current Gain

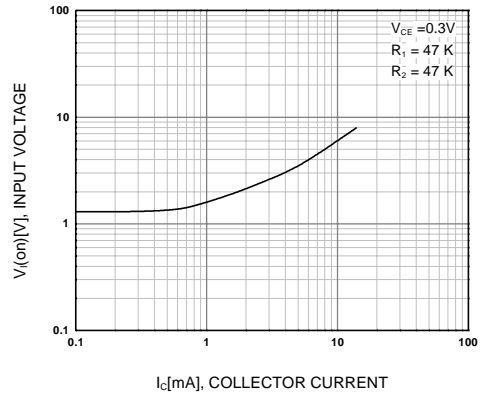


Figure 2. Input On Voltage

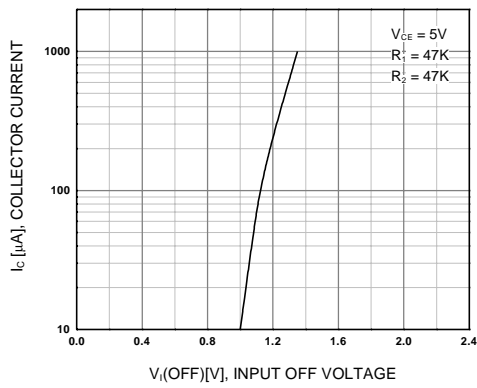


Figure 3. Input Off Voltage

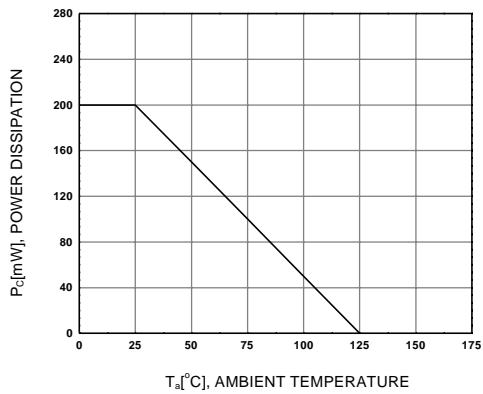


Figure 4. Power Derating

# Package Dimensions

## SOT-23



Dimensions in Millimeters

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