

**Silicon PNP Power Transistor**

**2SB1604**

**DESCRIPTION**

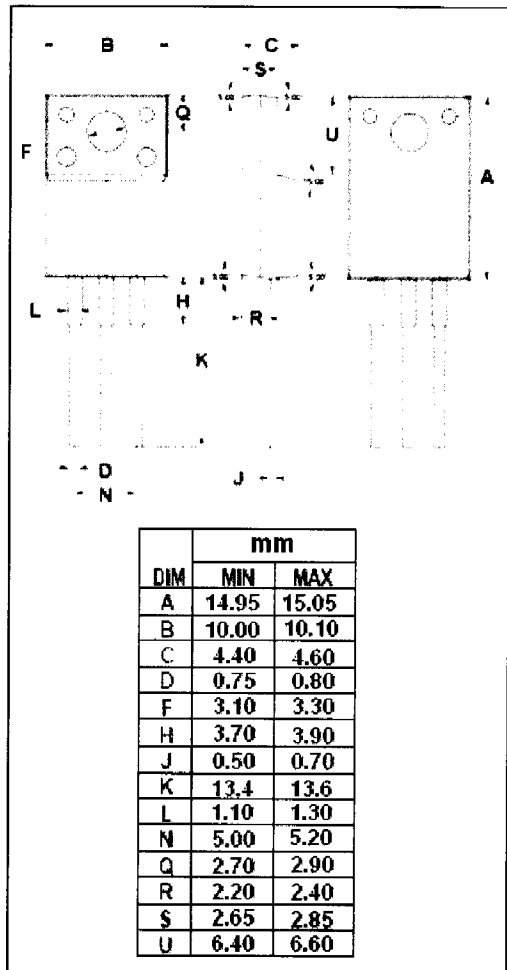
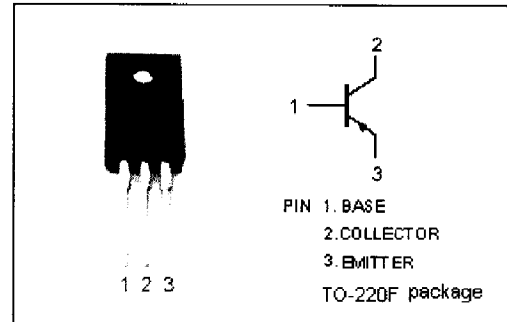
- High-speed Switching
- Low Collector to Emitter Saturation Voltage  
 :  $V_{CE(sat)} = -0.6V(\text{Max.}) @ I_C = -10A$
- Full-pack Package With Outstanding Insulation,  
 Which Can Be Installed to The Heat Sink With One Screw

**APPLICATIONS**

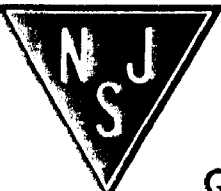
- Designed for low-voltage switching and general purpose applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	-40	V
$V_{CEO}$	Collector-Emitter Voltage	-20	V
$V_{EBO}$	Emitter-Base Voltage	-5	V
$I_C$	Collector Current-Continuous	-10	A
$I_{CM}$	Collector Current-Peak	-20	A
$P_C$	Collector Power Dissipation @ $T_a = 25^\circ\text{C}$	2	W
	Collector Power Dissipation @ $T_c = 25^\circ\text{C}$	40	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-55~150	$^\circ\text{C}$



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## ELECTRICAL CHARACTERISTICS

$T_C=25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	$I_C = -10\text{mA}$ ; $I_B = 0$	-20			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -10\text{A}$ ; $I_B = -0.33\text{A}$			-0.6	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -10\text{A}$ ; $I_B = -0.33\text{A}$			-1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB} = -40\text{V}$ ; $I_E = 0$			-50	$\mu\text{A}$
$I_{EBO}$	Emitter Cutoff Current	$V_{EB} = -5\text{V}$ ; $I_C = 0$			-50	$\mu\text{A}$
$h_{FE-1}$	DC Current Gain	$I_C = -0.1\text{A}$ ; $V_{CE} = -2\text{V}$	45			
$h_{FE-2}$	DC Current Gain	$I_C = -3\text{A}$ ; $V_{CE} = -2\text{V}$	90		260	
$f_T$	Current-Gain—Bandwidth Product	$I_E = 0.5\text{A}$ ; $V_{CE} = -10\text{V}$ ; $f = 10\text{MHz}$		30		MHz

### Switching Times

$t_{on}$	Turn-on Time	$I_C = -3\text{A}$ ; $I_{B1} = -I_{B2} = -0.1\text{A}$		0.1		$\mu\text{s}$
$t_{stg}$	Storage Time			0.5		$\mu\text{s}$
$t_f$	Fall Time			0.1		$\mu\text{s}$

### ◆ $h_{FE-2}$ Classifications

Q	P
90-180	130-260