

**Silicon NPN Power Transistor**

**BDY54**

**DESCRIPTION**

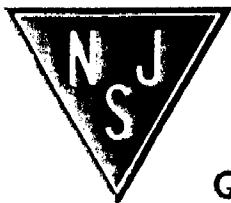
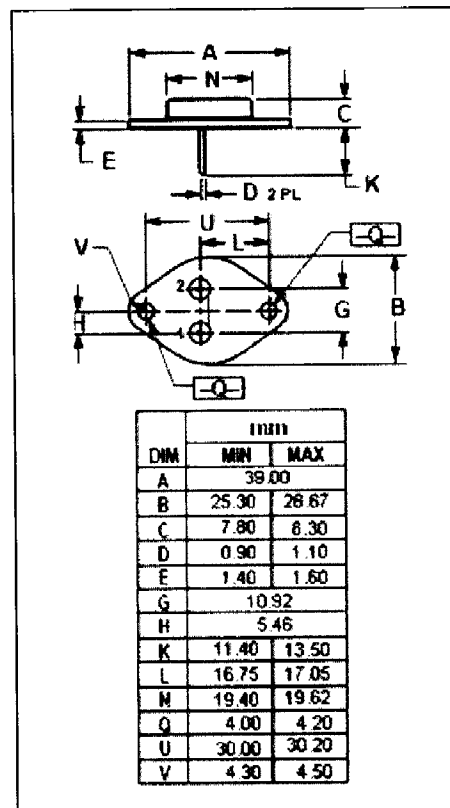
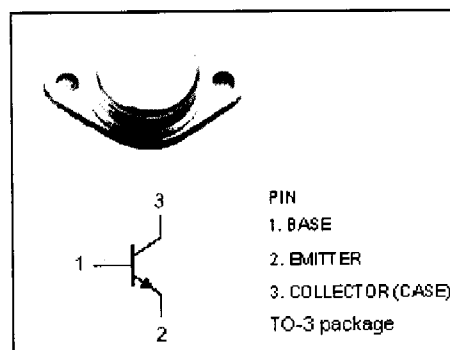
- Collector-Emitter Sustaining Voltage-  
:  $V_{CE(SUS)} = 120V(\text{Min.})$
- Collector-Emitter Saturation Voltage-  
:  $V_{CE(sat)} = 1.1 V(\text{Max}) @ I_C = 4A$
- High Switching Speed

**APPLICATIONS**

- Designed for general-purpose switching and amplifier applications

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	180	V
$V_{CEO}$	Collector-Emitter Voltage	120	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	12	A
$I_B$	Base Current	5	A
$P_C$	Collector Power Dissipation@ $T_c=25^\circ\text{C}$	60	W
$T_J$	Junction Temperature	200	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65~200	$^\circ\text{C}$



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### ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CEQ(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=100\text{mA}; I_B=0$	120			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$			1.1	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=1.4\text{A}$			2.2	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$			2.0	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=1.4\text{A}$			2.5	V
$I_{CEX}$	Collector Cutoff Current	$V_{CE}=150\text{V}; V_{BE}=-1.5\text{V}; T_C=150^\circ\text{C}$			15	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$			3.0	mA
$h_{FE}$	DC Current Gain	$I_C=2\text{A}; V_{CE}=1.5\text{V}$	20			
$f_T$	Current Gain-Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=4\text{V}; f=10\text{MHz}$	20			MHz

### Switching Times

$t_{on}$	Turn-On Time	$I_C=5\text{A}; I_B=1\text{A}$		0.3		$\mu\text{s}$
$t_{off}$	Turn-Off Time	$I_C=5\text{A}; I_{B1}=1\text{A}; I_{B2}=-0.5\text{A}$		1.8		$\mu\text{s}$