

**Silicon NPN Power Transistor**

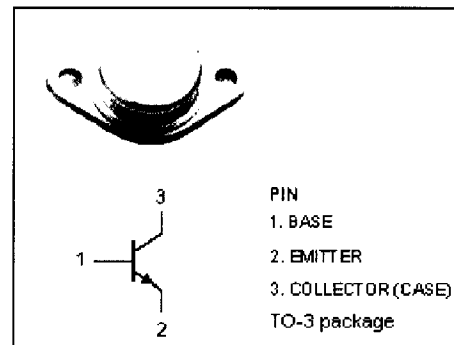
**BDY56**

**DESCRIPTION**

- Excellent Safe Operating Area
- DC Current Gain-  
 :  $h_{FE}=20-70@I_C = 4A$
- Collector-Emitter Saturation Voltage-  
 :  $V_{CE(sat)} = 1.1 V(Max)@ I_C = 4A$

**APPLICATIONS**

- Designed for general-purpose switching and amplifier applications

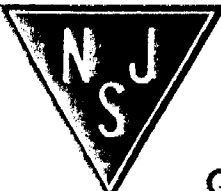
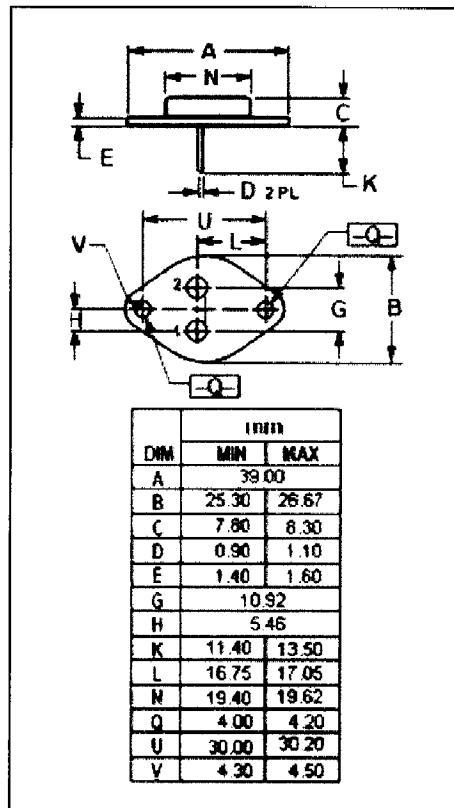


**ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}C$ )**

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	150	V
$V_{CEO}$	Collector-Emitter Voltage	120	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	15	A
$I_B$	Base Current	7	A
$P_C$	Collector Power Dissipation@ $T_C=25^{\circ}C$	117	W
$T_J$	Junction Temperature	200	$^{\circ}C$
$T_{stg}$	Storage Temperature	-65~200	$^{\circ}C$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.5	$^{\circ}C/W$



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### ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{mA}; I_B=0$	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	$I_C=10\text{A}; I_B=3.3\text{A}$		2.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=4\text{A}; V_{CE}=4\text{V}$		1.8	V
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=60\text{V}; I_B=0$		0.5	mA
$I_{CEX}$	Collector Cutoff Current	$V_{CE}=150\text{V}; V_{BE}=-1.5\text{V}$ $V_{CE}=150\text{V}; V_{BE}=-1.5\text{V}; T_C=150^\circ\text{C}$		3.0 30	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$		3.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=4\text{A}; V_{CE}=4\text{V}$	20	70	
$h_{FE-2}$	DC Current Gain	$I_C=10\text{A}; V_{CE}=4\text{V}$	10		
$f_T$	Current Gain-Bandwidth Product	$I_C=1\text{A}; V_{CE}=4\text{V}; f=10\text{MHz}$	10		MHz

### Switching Times

$t_{on}$	Turn-On Time	$I_C=5\text{A}; I_B=1\text{A}$		0.5	$\mu\text{s}$
$t_{off}$	Turn-Off Time	$I_C=5\text{A}; I_{B1}=1\text{A}; I_{B2}=-0.5\text{A}$		2.0	$\mu\text{s}$