

**Silicon NPN Power Transistor**

**BUY56**

**DESCRIPTION**

- Collector-Emitter Breakdown Voltage-  
:  $V_{(BR)CEO} = 160V(\text{Min.})$
- Low Collector Saturation Voltage-  
:  $V_{CE(sat)} = 1.5V @ I_C = 7A$

**APPLICATIONS**

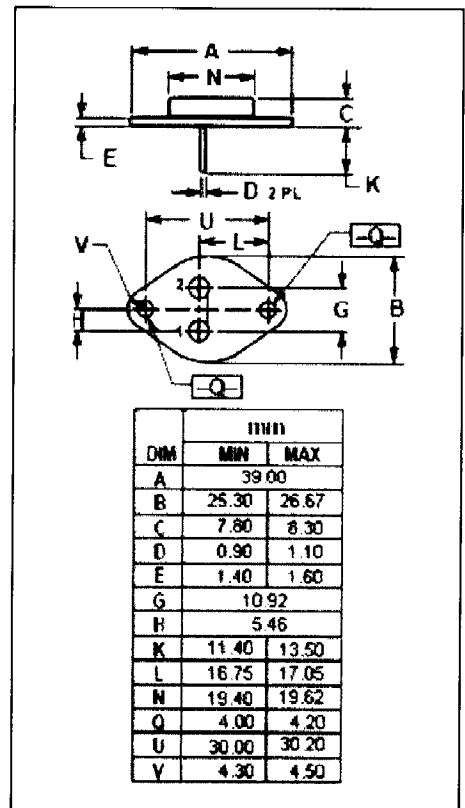
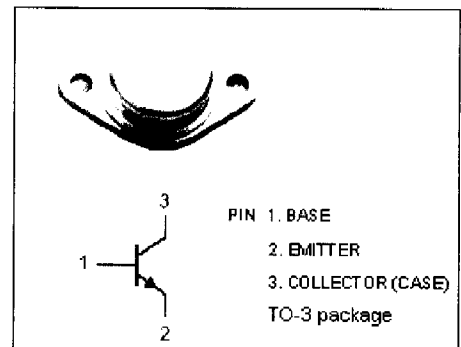
- Designed for general switching applications at higher outputs.

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

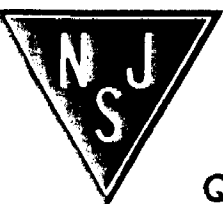
SYMBOL	PARAMETER	MAX	UNIT
$V_{CBO}$	Collector-Base Voltage	250	V
$V_{CES}$	Collector-Emitter Voltage	250	V
$V_{CEO}$	Collector-Emitter Voltage	160	V
$V_{EBO}$	Emitter-Base Voltage	6	V
$I_C$	Collector Current-Continuous	10	A
$I_{CM}$	Collector Current-Peak	15	A
$I_B$	Base Current-Continuous	2	A
$P_C$	Collector Power Dissipation @ $T_c \leq 75^\circ\text{C}$	60	W
$T_j$	Junction Temperature	175	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65~175	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th j-c}$	Thermal Resistance, Junction to Case	1.66	$^\circ\text{C/W}$



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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	$I_C=20\text{mA}; I_B=0$	160			V
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C=1\text{mA}; I_E=0$	250			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E=1\text{mA}; I_C=0$	6			V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=0.875\text{A}$			1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=7\text{A}; V_{CE}=1.5\text{V}$			1.5	V
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=250\text{V}; I_E=0$ $V_{CB}=250\text{V}; I_E=0; T_C=150^\circ\text{C}$			1.0 10	mA
$I_{CES}$	Collector Cutoff Current	$V_{CE}=250\text{V}; V_{BE}=0$ $V_{CE}=250\text{V}; V_{BE}=0; T_C=150^\circ\text{C}$			1.0 10	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=6\text{V}; I_C=0$			1.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=2\text{A}; V_{CE}=1.5\text{V}$	25		160	
$h_{FE-2}$	DC Current Gain	$I_C=7\text{A}; V_{CE}=1.5\text{V}$	8			
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.2\text{A}; V_{CE}=10\text{V}$		20		MHz
$C_{OB}$	Collector Output Capacitance	$I_E=0; V_{CB}=10\text{V}; f=1\text{MHz}$			200	pF

### Switching Times

$t_{on}$	Turn-On Time	$I_C=6\text{A}; I_{B1}=-I_{B2}=1\text{A}$			2.0	$\mu\text{s}$
$t_{off}$	Turn-Off Time				2.0	$\mu\text{s}$
$t_s$	Storage Time				1.2	$\mu\text{s}$