

Silicon NPN Power Transistor

2N3442

DESCRIPTION

- Excellent Safe Operating Area
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(SUS)} = 140V(\text{Min.})$
- Collector-Emitter Saturation Voltage-
: $V_{CE(sat)} = 5.0V(\text{Max}) @ I_C = 10A$

APPLICATIONS

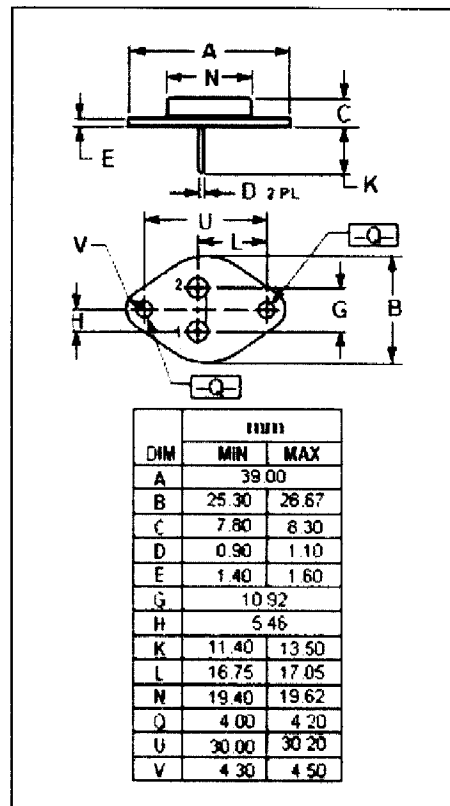
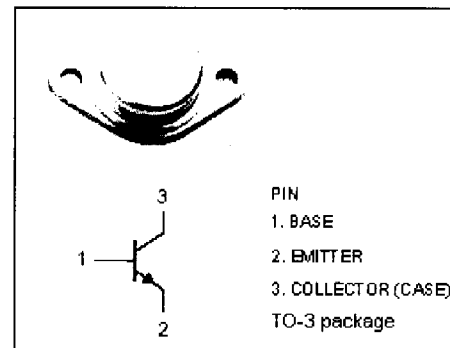
- Designed for use in industrial and commercial equipment including high fidelity audio amplifiers, series and shunt regulators and power switches.

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

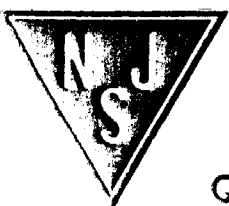
SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	160	V
V_{CEO}	Collector-Emitter Voltage	140	V
V_{EBO}	Emitter-Base Voltage	7	V
I_C	Collector Current-Continuous	10	A
I_{CP}	Collector Current-Peak	15	A
I_B	Base Current-Continuous	7	A
P_C	Collector Power Dissipation@ $T_C=25^\circ C$	117	W
T_J	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
$V_{CEQ(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{mA}; I_B=0$	140		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=2\text{A}$		5.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=10\text{A}; V_{CE}=4\text{V}$		5.7	V
I_{CEO}	Collector Cutoff Current	$V_{CE}=140\text{V}; I_B=0$		20	mA
I_{CEX}	Collector Cutoff Current	$V_{CE}=140\text{V}; V_{BE(off)}=1.5\text{V}$ $V_{CE}=140\text{V}; V_{BE(off)}=1.5\text{V}; T_C=150^\circ\text{C}$		5.0 30	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=7.0\text{V}; I_C=0$		5.0	mA
h_{FE-1}	DC Current Gain	$I_C=3\text{A}; V_{CE}=4\text{V}$	20	70	
h_{FE-2}	DC Current Gain	$I_C=10\text{A}; V_{CE}=4\text{V}$	7.5		
f_T	Current Gain-Bandwidth Product	$I_C=2\text{A}; V_{CE}=4\text{V}; f=40\text{kHz}$	80		kHz