

isc Silicon NPN Power Transistor

2N3771

DESCRIPTION

- Excellent Safe Operating Area
- High DC Current Gain- $h_{FE}=15(\text{Min})@I_C = 15A$
- Low Saturation Voltage-
: $V_{CE(\text{sat})}= 2.0V(\text{Max})@ I_C = 15A$

APPLICATIONS

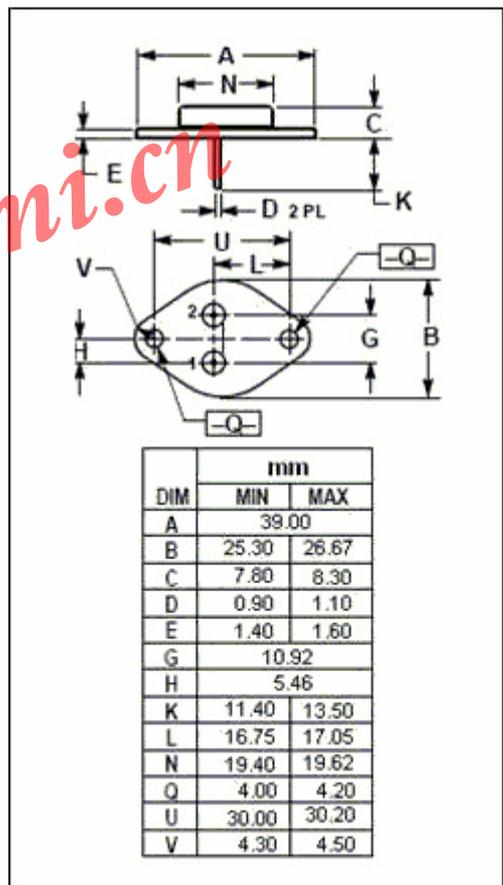
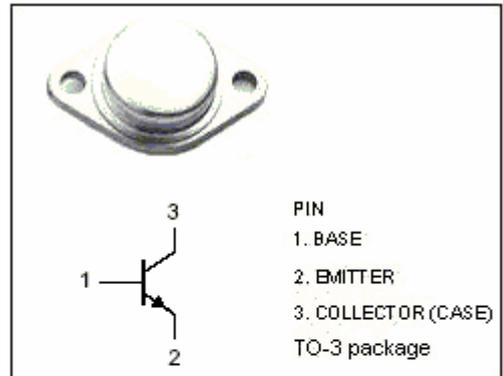
- Designed for linear amplifiers, series pass regulators, and inductive switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	50	V
V_{CEX}	Collector-Emitter Voltage	50	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	30	A
I_{CM}	Collector Current-Peak	30	A
I_B	Base Current-Continuous	7.5	A
I_{BM}	Base Current-Peak	15	A
P_C	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	150	W
T_J	Junction Temperature	200	$^\circ\text{C}$
T_{stg}	Storage Temperature	-65~200	$^\circ\text{C}$

THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.17	$^\circ\text{C/W}$



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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	$I_C=200\text{mA}; I_B=0$	40		V
$V_{CEX(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{mA}; V_{BE(off)}=1.5\text{V}; R_{BE}=100\Omega$	50		V
$V_{CER(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=200\text{mA}; R_{BE}=100\Omega$	45		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=15\text{A}; I_B=1.5\text{A}$		2.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=30\text{A}; I_B=6\text{A}$		4.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=15\text{A}; V_{CE}=4\text{V}$		2.7	V
I_{CEO}	Collector Cutoff Current	$V_{CE}=30\text{V}; I_B=0$		10	mA
I_{CEV}	Collector Cutoff Current	$V_{CE}=50\text{V}; V_{BE(off)}=1.5\text{V}$ $V_{CE}=30\text{V}; V_{BE(off)}=1.5\text{V}, T_C=150^\circ\text{C}$		2.0 10	mA
I_{CBO}	Collector Cutoff Current	$V_{CB}=50\text{V}; I_E=0$		2.0	mA
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		5.0	mA
h_{FE-1}	DC Current Gain	$I_C=15\text{A}; V_{CE}=4\text{V}$	15	60	
h_{FE-2}	DC Current Gain	$I_C=30\text{A}; V_{CE}=4\text{V}$	5		
f_T	Current-Gain—Bandwidth Product	$I_C=1\text{A}; V_{CE}=4\text{V}; f_{test}=50\text{kHz}$	0.2		MHz
$I_{s/b}$	Second Breakdown Collector Current with Base Forward Biased	$V_{CE}=40\text{V}, t=1.0\text{s}, \text{Nonrepetitive}$	3.75		A