

**INCHANGE Semiconductor**

**ISC Product Specification**

**isc Silicon NPN Power Transistor**

**2N3771**

**DESCRIPTION**

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

**APPLICATIONS**

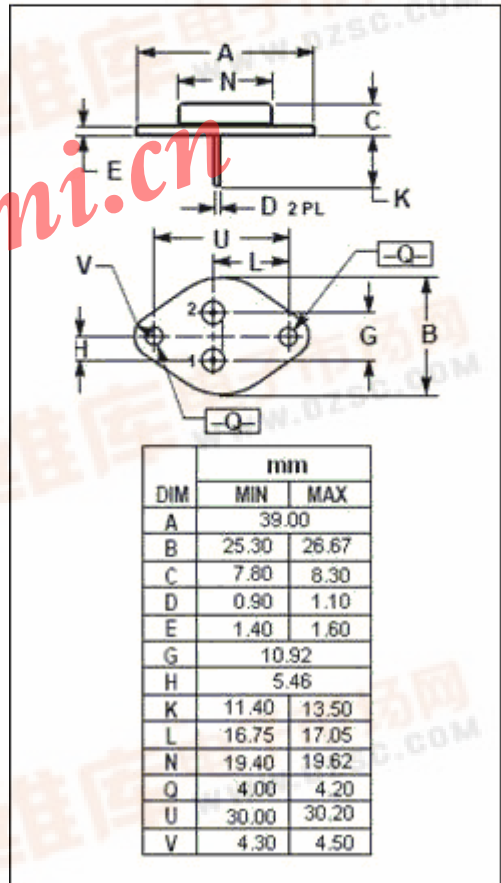
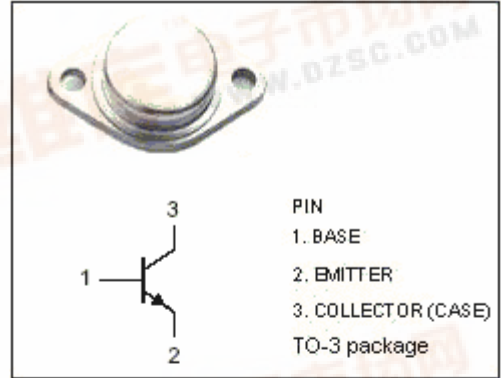
- Designed for linear amplifiers, series pass regulators, and inductive switching applications.

**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	$^\circ\text{C}$
$T_{\text{stg}}$	Storage Temperature	-65~200	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

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



## isc Silicon NPN Power Transistor

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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