

**isc Silicon NPN Power Transistor**
**TIP33A**
**DESCRIPTION**

- DC Current Gain-  
:  $h_{FE} = 40(\text{Min}) @ I_C = 1A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(\text{SUS})} = 60V(\text{Min})$
- Complement to Type TIP34A
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**APPLICATIONS**

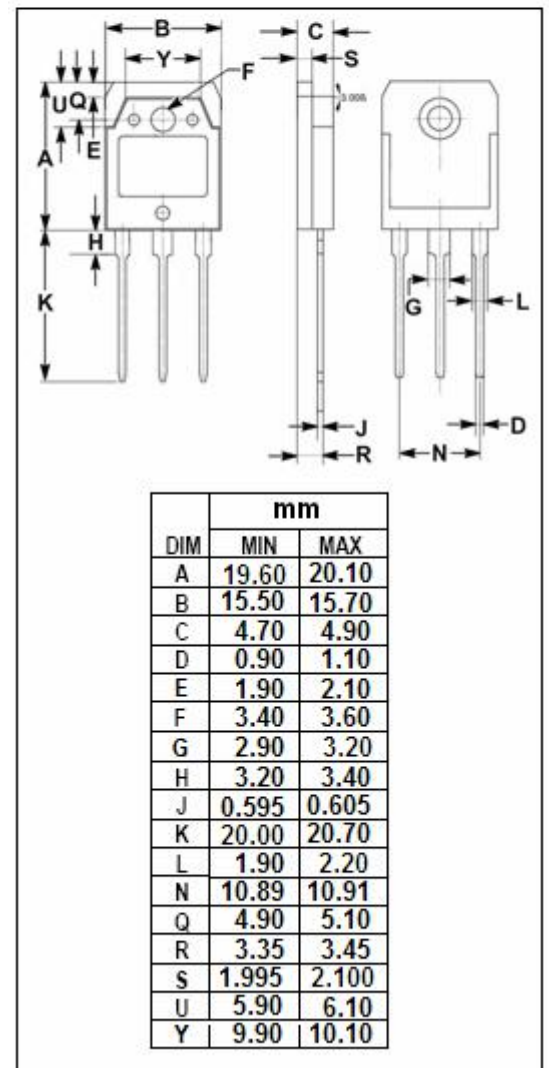
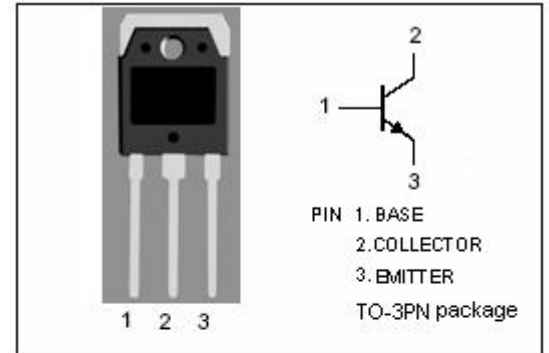
- Designed for use in general purpose power amplifier and switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	60	V
$V_{CEO}$	Collector-Emitter Voltage	60	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current -Continuous	10	A
$I_{CM}$	Collector Current-peak	15	A
$I_B$	Base Current	3	A
$P_C$	Collector Power Dissipation@ $T_C = 25^\circ\text{C}$	80	W
$T_j$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature	-65~150	$^\circ\text{C}$

**THERMAL CHARACTERISTICS**

SYMBOL	PARAMETER	MAX	UNIT
$R_{th-j-c}$	Thermal Resistance, Junction to Case	1.56	$^\circ\text{C/W}$



## isc Silicon NPN Power Transistor

## TIP33A

## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=30\text{mA}; I_B=0$	60		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=3\text{A}; I_B=0.3\text{A}$		1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=10\text{A}; I_B=2.5\text{A}$		4.0	V
$V_{BE(on)-1}$	Base-Emitter On Voltage	$I_C=3\text{A}; V_{CE}=4\text{V}$		1.6	V
$V_{BE(on)-2}$	Base-Emitter On Voltage	$I_C=10\text{A}; V_{CE}=4\text{V}$		3.0	V
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=30\text{V}; I_B=0$		0.7	mA
$I_{CES}$	Collector Cutoff Current	$V_{CE}=60\text{V}; V_{EB}=0$		0.4	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		1.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=1\text{A}; V_{CE}=4\text{V}$	40		
$h_{FE-2}$	DC Current Gain	$I_C=3\text{A}; V_{CE}=4\text{V}$	20	100	
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}; f_{test}=1.0\text{MHz}$	3		MHz

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