

# isc Silicon NPN Power Transistor

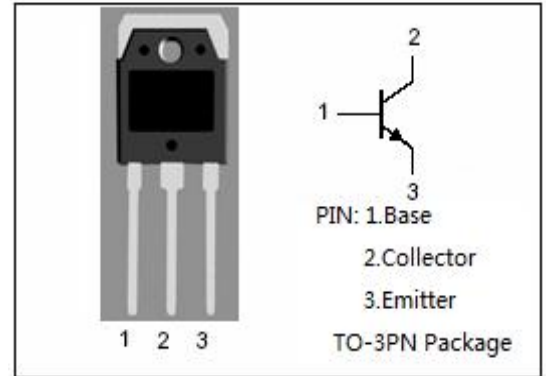
# BU433

## DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 375V(\text{Min})$
- High Switching Speed
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

- Designed for use in the switch-mode power supply of color TV receivers.

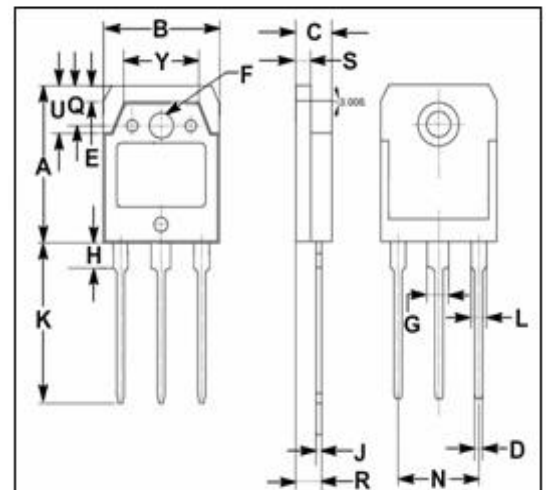


## ABSOLUTE MAXIMUM RATINGS( $T_a=25^\circ\text{C}$ )

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CES}$	Collector-Emitter Voltage $V_{BE} = 0$	800	V
$V_{CEO}$	Collector-Emitter Voltage	375	V
$V_{EBO}$	Emitter-Base Voltage	10	V
$I_C$	Collector Current-Continuous	6	A
$I_{CM}$	Collector Current-Peak	10	A
$I_B$	Base Current-Continuous	2	A
$I_{BM}$	Base Current-Peak	3	A
$P_C$	Collector Power Dissipation @ $T_C=25^\circ\text{C}$	70	W
$T_J$	Junction Temperature	150	$^\circ\text{C}$
$T_{stg}$	Storage Temperature Range	-65~150	$^\circ\text{C}$

## THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.1	$^\circ\text{C}/\text{W}$



DIM	mm	
	MIN	MAX
A	19.60	20.30
B	15.50	15.70
C	4.70	4.90
D	0.90	1.10
E	1.90	2.10
F	3.40	3.60
G	2.90	3.20
H	3.20	3.40
J	0.595	0.605
K	19.80	20.70
L	1.90	2.20
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.100
U	5.90	6.20
Y	9.90	10.10

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## ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=5\text{mA}; I_B=0$	375			V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=2.5\text{A}; I_B=0.5\text{A}$			1.5	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=1.25\text{A}$			3.0	V
$V_{BE(sat)-1}$	Base-Emitter Saturation Voltage	$I_C=2.5\text{A}; I_B=0.5\text{A}$			1.4	V
$V_{BE(sat)-2}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=1.25\text{A}$			1.6	V
$I_{CES}$	Collector Cutoff Current	$V_{CEM}=800\text{V}; V_{BE}=0$ $V_{CEM}=800\text{V}; V_{BE}=0; T_J=125^\circ\text{C}$			1.0 2.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=10\text{V}; I_C=0$			10	mA
$h_{FE}$	DC Current Gain	$I_C=0.6\text{A}; V_{CE}=5\text{V}$		40		
$f_T$	Current Gain-Bandwidth Product	$I_C=0.2\text{A}; V_{CE}=10\text{V}; f_{test}=1\text{MHz}$		6		MHz

## Switching Times

$t_{on}$	Turn-On Time			0.5	0.6	$\mu\text{s}$
$t_{stg}$	Storage Time	$I_C=2.5\text{A}; I_{B1}=0.5\text{A}; I_{B2}=-1\text{A};$ $V_{CC}=250\text{V}$		2.0	3.5	$\mu\text{s}$
$t_f$	Fall Time			0.45	0.7	$\mu\text{s}$

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