

isc Silicon NPN Power Transistor

2N6704

DESCRIPTION

- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 130V(\text{Min})$
- High Switching Speed
- Low Saturation Voltage

APPLICATIONS

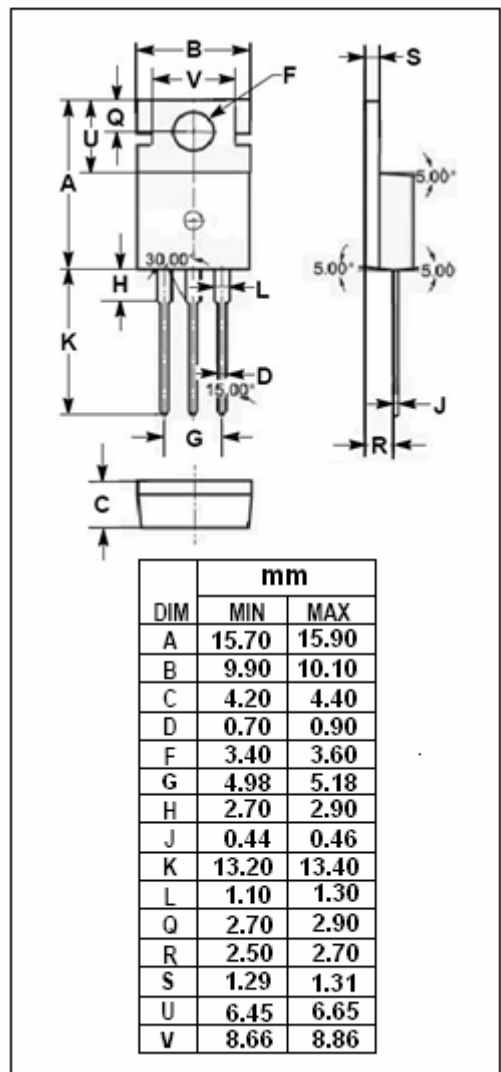
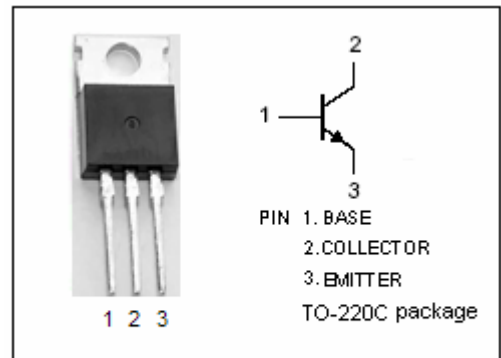
- Designed for converters, inverters, pulse-width-modulated regulators and a variety of power switching circuits.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CEV}$	Collector-Emitter Voltage- $V_{BE} = -1.5V$	180	V
$V_{CEO}$	Collector-Emitter Voltage	130	V
$V_{EBO}$	Emitter-Base Voltage	7	V
$I_C$	Collector Current-Continuous	7	A
$I_{CM}$	Collector Current-Peak	10	A
$I_B$	Base Current-Continuous	5	A
$P_C$	Collector Power Dissipation $T_C=25^\circ\text{C}$	50	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	2.5	$^\circ\text{C/W}$



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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	$I_C=10\text{mA}; I_B=0$	130		V
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$		0.7	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=7\text{A}; I_B=0.7\text{A}$		1.5	V
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$		1.4	V
$I_{CEV}$	Collector Cutoff Current	$V_{CEV}=180\text{V}; V_{BE}=-1.5\text{V}$ $V_{CEV}=180\text{V}; V_{BE}=-1.5\text{V}; T_J=125^\circ\text{C}$		0.1 1.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=7\text{V}; I_C=0$		0.1	mA
$h_{FE-1}$	DC Current Gain	$I_C=0.2\text{A}; V_{CE}=2\text{V}$	30		
$h_{FE-2}$	DC Current Gain	$I_C=4\text{A}; V_{CE}=2\text{V}$	20		
$C_{OB}$	Output Capacitance	$I_E=0; V_{CB}=10\text{V}, f_{\text{test}}=0.1\text{MHz}$	50	150	pF
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.5\text{A}; V_{CE}=10\text{V}, f_{\text{test}}=1\text{MHz}$	50	200	MHz

## Switching Times

$t_d$	Delay Time	$I_C=4\text{A}; I_{B1}=-I_{B2}=0.4\text{A}, V_{BE}=-4\text{V}$		0.1	$\mu\text{s}$
$t_r$	Rise Time			0.25	$\mu\text{s}$
$t_s$	Storage Time			1	$\mu\text{s}$
$t_f$	Fall Time			0.5	$\mu\text{s}$