

isc Silicon NPN Power Transistor
BD705
DESCRIPTION

- DC Current Gain -
: $h_{FE} = 40(\text{Min.}) @ I_C = 0.5\text{A}$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 45\text{V}(\text{Min.})$
- Complement to Type BD706
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

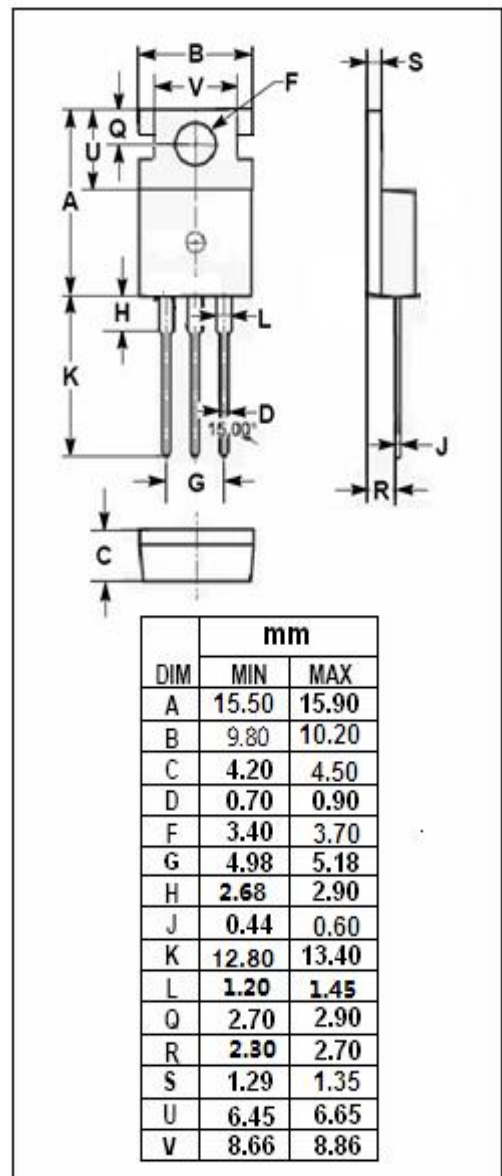
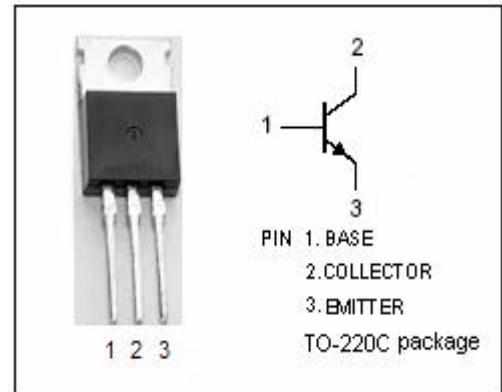
- Designed for use in power linear and switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	45	V
V_{CES}	Collector-Emitter Voltage $V_{BE} = 0$	45	V
V_{CEO}	Collector-Emitter Voltage	45	V
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	12	A
I_B	Base Current-Continuous	5	A
P_C	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	75	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	1.67	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

T_C=25°C unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V _{CEQ(SUS)}	Collector-Emitter Sustaining Voltage	I _C = 30mA; I _B = 0	45		V
V _{CE(sat)}	Collector-Emitter Saturation Voltage	I _C = 4A; I _B = 0.4A		1.0	V
V _{BE(on)}	Base-Emitter On Voltage	I _C = 4A; V _{CE} = 4V		1.5	V
I _{CEO}	Collector Cutoff Current	V _{CE} = 22V; I _B = 0		1.0	mA
I _{CBO}	Collector Cutoff Current	V _{CB} = 45V; I _E = 0 V _{CB} = 45V; I _E = 0; T _C = 150°C		0.1 1.0	mA
I _{EBO}	Emitter Cutoff Current	V _{EB} = 5V; I _C = 0		1.0	mA
h _{FE-1}	DC Current Gain	I _C = 0.5A; V _{CE} = 2V	40	400	
h _{FE-2}	DC Current Gain	I _C = 2A; V _{CE} = 2V	30		
h _{FE-3}	DC Current Gain	I _C = 4A; V _{CE} = 4V	20	150	
h _{FE-4}	DC Current Gain	I _C = 10A; V _{CE} = 4V	5		
f _T	Current-Gain—Bandwidth Product	I _C = 0.3A; V _{CE} = 3V	3		MHz

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