

isc Silicon NPN Power Transistor

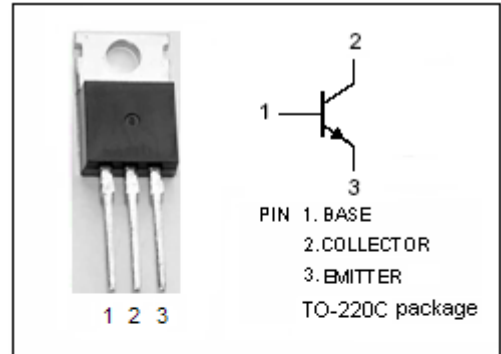
BD705

DESCRIPTION

- DC Current Gain -  
:  $h_{FE} = 40(\text{Min.}) @ I_C = 0.5A$
- Collector-Emitter Sustaining Voltage-  
:  $V_{CEO(SUS)} = 45V(\text{Min.})$
- Complement to Type BD706

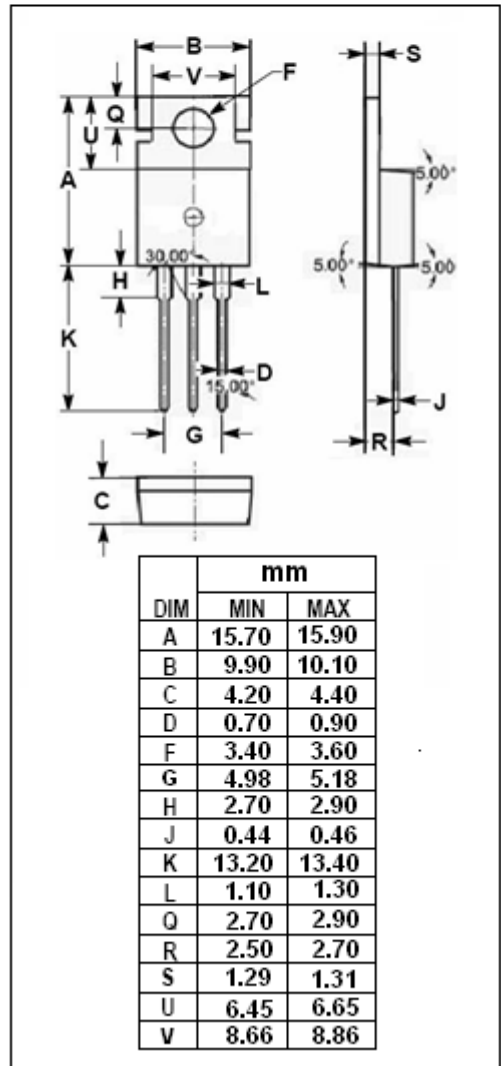
APPLICATIONS

- Designed for use in power linear and switching applications.



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

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 @ $T_C=25^\circ C$	75	W
$T_J$	Junction Temperature	150	$^\circ C$
$T_{stg}$	Storage Temperature Range	-65~150	$^\circ C$



THERMAL CHARACTERISTICS

SYMBOL	PARAMETER	MAX	UNIT
$R_{th\ j-c}$	Thermal Resistance, Junction to Case	1.67	$^\circ C/W$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ C/W$

**isc Silicon NPN Power Transistor****BD705****ELECTRICAL CHARACTERISTICS** $T_C=25^\circ\text{C}$  unless otherwise specified

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
$V_{CEO(SUS)}$	Collector-Emitter Sustaining Voltage	$I_C=100\text{mA}; I_B=0$	45		V
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C=4\text{A}; I_B=0.4\text{A}$		1.0	V
$V_{BE(on)}$	Base-Emitter On Voltage	$I_C=4\text{A}; V_{CE}=4\text{V}$		1.5	V
$I_{CEO}$	Collector Cutoff Current	$V_{CE}=22\text{V}; I_B=0$		1.0	mA
$I_{CBO}$	Collector Cutoff Current	$V_{CB}=45\text{V}; I_E=0$ $V_{CB}=45\text{V}; I_E=0; T_C=150^\circ\text{C}$		0.1 1.0	mA
$I_{EBO}$	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$		1.0	mA
$h_{FE-1}$	DC Current Gain	$I_C=0.5\text{A}; V_{CE}=2\text{V}$	40	400	
$h_{FE-2}$	DC Current Gain	$I_C=2\text{A}; V_{CE}=2\text{V}$	30		
$h_{FE-3}$	DC Current Gain	$I_C=4\text{A}; V_{CE}=4\text{V}$	20	150	
$h_{FE-4}$	DC Current Gain	$I_C=10\text{A}; V_{CE}=4\text{V}$	5		
$f_T$	Current-Gain—Bandwidth Product	$I_C=0.3\text{A}; V_{CE}=3\text{V}$	3		MHz