

## isc Silicon NPN Power Transistor

BD905

## 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 BD906
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## APPLICATIONS

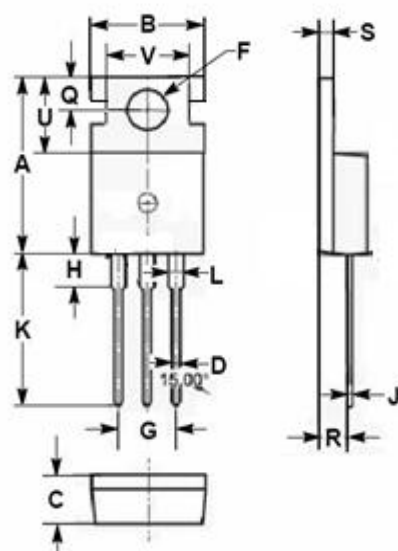
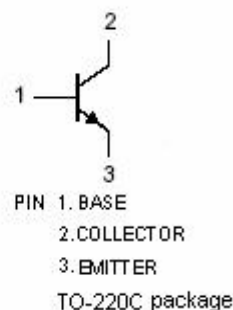
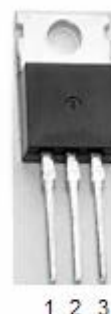
- Designed for use in general purpose power amplifier and switching applications.

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

SYMBOL	PARAMETER	VALUE	UNIT
$V_{CBO}$	Collector-Base Voltage	45	V
$V_{CEO}$	Collector-Emitter Voltage	45	V
$V_{EBO}$	Emitter-Base Voltage	5	V
$I_C$	Collector Current-Continuous	15	A
$I_{CM}$	Collector Current-Peak	20	A
$I_B$	Base Current	5	A
$P_C$	Collector Power Dissipation @ $T_C = 25^\circ\text{C}$	90	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	1.38	$^\circ\text{C/W}$



DIM	mm	
	MIN	MAX
A	15.50	15.90
B	9.80	10.20
C	4.20	4.50
D	0.70	0.90
F	3.40	3.70
G	4.98	5.18
H	2.68	2.90
J	0.44	0.60
K	12.80	13.40
L	1.20	1.45
Q	2.70	2.90
R	2.30	2.70
S	1.29	1.35
U	6.45	6.65
V	8.66	8.86

**isc Silicon NPN Power Transistor****BD905****ELECTRICAL CHARACTERISTICS****T<sub>C</sub>=25°C unless otherwise specified**

SYMBOL	PARAMETER	CONDITIONS	MIN	MAX	UNIT
V <sub>CEO(SUS)</sub>	Collector-Emitter Sustaining Voltage	I <sub>C</sub> = 50mA ; I <sub>B</sub> = 0	45		V
V <sub>CE(sat)-1</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 5A; I <sub>B</sub> = 0.5A		1.0	V
V <sub>CE(sat)-2</sub>	Collector-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 2.5A		3.0	V
V <sub>BE(sat)</sub>	Base-Emitter Saturation Voltage	I <sub>C</sub> = 10A; I <sub>B</sub> = 2.5A		2.5	V
V <sub>BE(on)</sub>	Base-Emitter On Voltage	I <sub>C</sub> = 5A; V <sub>CE</sub> = 4V		1.5	V
I <sub>CBO</sub>	Collector Cutoff Current	V <sub>CB</sub> = 45V; I <sub>E</sub> = 0		0.5	mA
I <sub>CEO</sub>	Collector Cutoff Current	V <sub>CE</sub> = 30V; I <sub>B</sub> = 0		1.0	mA
I <sub>EBO</sub>	Emitter Cutoff Current	V <sub>EB</sub> = 5V; I <sub>C</sub> = 0		1.0	mA
h <sub>FE-1</sub>	DC Current Gain	I <sub>C</sub> = 0.5A; V <sub>CE</sub> = 4V	40	250	
h <sub>FE-2</sub>	DC Current Gain	I <sub>C</sub> = 5A; V <sub>CE</sub> = 4V	15	150	
h <sub>FE-3</sub>	DC Current Gain	I <sub>C</sub> = 10A; V <sub>CE</sub> = 4V	5		
f <sub>T</sub>	Current-Gain—Bandwidth Product	I <sub>C</sub> = 0.5A; V <sub>CE</sub> = 4V; f <sub>test</sub> = 1.0MHz	3.0		MHz

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