

Silicon NPN Power Transistor

BD745/A/B/C

DESCRIPTION

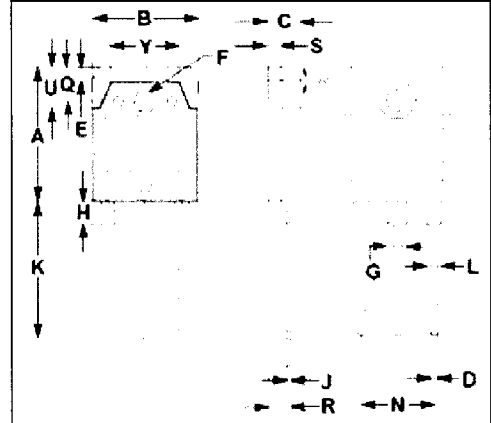
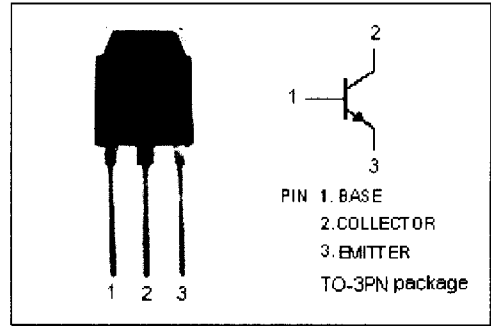
- Collector Current $-I_C = 20A$
- Collector-Emitter Breakdown Voltage-
 $V_{(BR)CEO} = 45V(\text{Min})$ - BD745; $60V(\text{Min})$ - BD745A
 $80V(\text{Min})$ - BD745B; $100V(\text{Min})$ - BD745C
- Complement to Type BD746/A/B/C

APPLICATIONS

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

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

SYMBOL	PARAMETER	VALUE	UNIT	
V_{CER}	Collector-Emitter Voltage ($R_{BE} = 100\Omega$)	BD745	50	V
		BD745A	70	
		BD745B	90	
		BD745C	110	
V_{CEO}	Collector-Emitter Voltage	BD745	45	V
		BD745A	60	
		BD745B	80	
		BD745C	100	
V_{EBO}	Emitter-Base Voltage	5	V	
I_C	Collector Current-Continuous	20	A	
I_{CM}	Collector Current-Peak	25	A	
I_B	Base Current	7	A	
P_C	Collector Power Dissipation @ $T_a=25^\circ C$	3.5	W	
	Collector Power Dissipation @ $T_C=25^\circ C$	115		
T_J	Junction Temperature	150	$^\circ C$	
T_{stg}	Storage Temperature Range	-65~150	$^\circ C$	



DIM	mm	
	MIN	MAX
A	19.90	20.10
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	3.10
H	3.20	3.40
J	0.595	0.605
K	20.50	20.70
L	1.90	2.10
N	10.89	10.91
Q	4.90	5.10
R	3.35	3.45
S	1.995	2.005
U	5.90	6.10
Y	9.90	10.10

THERMAL CHARACTERISTICS

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



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER	CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	BD745	$I_C=30\text{mA}; I_B=0$			V
		BD745A				
		BD745B				
		BD745C				
$V_{CE(sat)-1}$	Collector-Emitter Saturation Voltage	$I_C=5\text{A}; I_B=0.5\text{A}$			1.0	V
$V_{CE(sat)-2}$	Collector-Emitter Saturation Voltage	$I_C=20\text{A}; I_B=5\text{A}$			3.0	V
$V_{BE(on)-1}$	Base-Emitter On Voltage	$I_C=5\text{A}; V_{CE}=4\text{V}$			1.0	V
$V_{BE(on)-2}$	Base-Emitter On Voltage	$I_C=20\text{A}; V_{CE}=4\text{V}$			3.0	V
I_{CES}	Collector Cutoff Current	BD745				mA
		BD745A				
		BD745B				
		BD745C				
I_{CEO}	Collector Cutoff Current	BD745/A			0.1	mA
		BD745B/C				
I_{EBO}	Emitter Cutoff Current	$V_{EB}=5\text{V}; I_C=0$			0.5	mA
h_{FE-1}	DC Current Gain	$I_C=1\text{A}; V_{CE}=4\text{V}$	40			
h_{FE-2}	DC Current Gain	$I_C=5\text{A}; V_{CE}=4\text{V}$	20		150	
h_{FE-3}	DC Current Gain	$I_C=20\text{A}; V_{CE}=4\text{V}$	5			

Switching times

t_d	Delay Time	$I_C=5\text{A}; I_{B1}=-I_{B2}=0.5\text{A}; R_L=6\Omega; V_{BE(off)}=-4.2\text{V}$		0.02		μs
t_r	Rise Time			0.35		μs
t_s	Storage Time			0.50		μs
t_f	Fall Time			0.40		μs