

SPTECH 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

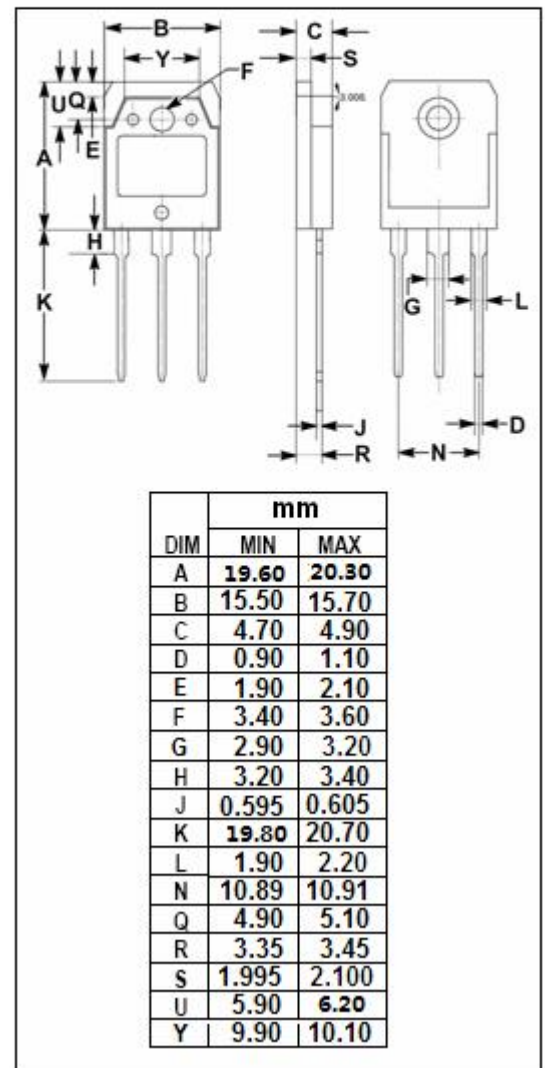
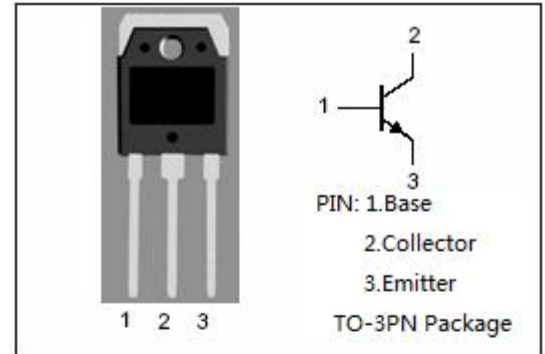
- Designed for use in general purpose power amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CER}	Collector-Emitter Voltage ($R_{BE} = 100\Omega$)	BD745	50
		BD745A	70
		BD745B	90
		BD745C	110
V_{CEO}	Collector-Emitter Voltage	BD745	45
		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 @ $T_a=25^\circ\text{C}$	3.5	W
	Collector Power Dissipation @ $T_c=25^\circ\text{C}$	115	
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	1.1	$^\circ\text{C/W}$



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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	$I_C=30\text{mA}; I_B=0$	45			V
		BD745A		60			
		BD745B		80			
		BD745C		100			
$V_{CE(sat)-1}$	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	$V_{CE}=50\text{V}; V_{BE}=0$ $V_{CE}=50\text{V}; V_{BE}=0; T_C=125^{\circ}\text{C}$			0.1 5.0	mA
		BD745A	$V_{CE}=70\text{V}; V_{BE}=0$ $V_{CE}=70\text{V}; V_{BE}=0; T_C=125^{\circ}\text{C}$			0.1 5.0	
		BD745B	$V_{CE}=90\text{V}; V_{BE}=0$ $V_{CE}=90\text{V}; V_{BE}=0; T_C=125^{\circ}\text{C}$			0.1 5.0	
		BD745C	$V_{CE}=110\text{V}; V_{BE}=0$ $V_{CE}=110\text{V}; V_{BE}=0; T_C=125^{\circ}\text{C}$			0.1 5.0	
I_{CEO}	Collector Cutoff Current	BD745/A	$V_{CE}=30\text{V}; I_B=0$			0.1	mA
		BD745B/C	$V_{CE}=60\text{V}; I_B=0$				
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