

isc Silicon NPN Power Transistors

BDT41/A/B/C

DESCRIPTION

- DC Current Gain $-h_{FE} = 30(\text{Min})@ I_C = 0.3A$
- Collector-Emitter Sustaining Voltage-
: $V_{CEO(\text{SUS})} = 40V(\text{Min})$ - BDT41; $60V(\text{Min})$ - BDT41A
80V(Min)- BDT41B; $100V(\text{Min})$ - BDT41C
- Complement to Type BDT42/42A/42B/42C
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

APPLICATIONS

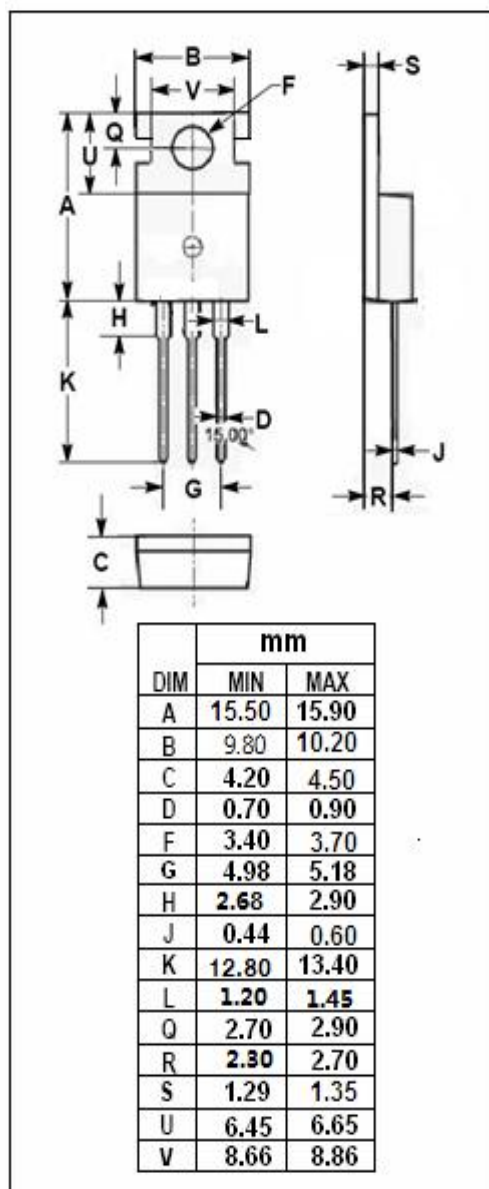
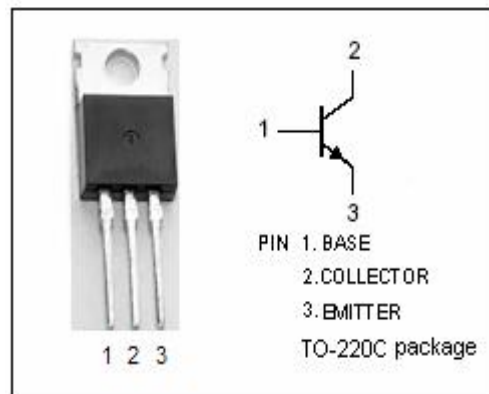
- Designed for use in general purpose amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT
V_{CBO}	Collector-Base Voltage	BDT41	80
		BDT41A	100
		BDT41B	120
		BDT41C	140
V_{CEO}	Collector-Emitter Voltage	BDT41	40
		BDT41A	60
		BDT41B	80
		BDT41C	100
V_{EBO}	Emitter-Base Voltage	5	V
I_C	Collector Current-Continuous	6	A
I_{CM}	Collector Current-Peak	10	A
I_B	Base Current	3	A
P_C	Collector Power Dissipation $T_C=25^\circ\text{C}$	65	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	1.92	$^\circ\text{C/W}$
$R_{th\ j-a}$	Thermal Resistance, Junction to Ambient	70	$^\circ\text{C/W}$



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ELECTRICAL CHARACTERISTICS

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{\text{CEO(SUS)}}$	Collector-Emitter Sustaining Voltage	BDT41	$I_{\text{C}}=30\text{mA}; I_{\text{B}}=0$	40			V
		BDT41A		60			
		BDT 41B		80			
		BDT 41C		100			
$V_{\text{CE(sat)}}$	Collector-Emitter Saturation Voltage		$I_{\text{C}}=6\text{A}; I_{\text{B}}=0.6\text{A}$			1.5	V
$V_{\text{BE(on)}}$	Base-Emitter On Voltage		$I_{\text{C}}=6\text{A}; V_{\text{CE}}=4\text{V}$			2.0	V
I_{CES}	Collector Cutoff Current		$V_{\text{CE}}=V_{\text{CEOmax}}; V_{\text{BE}}=0$			0.4	mA
I_{CEO}	Collector Cutoff Current	BDT41/A	$V_{\text{CE}}=30\text{V}; I_{\text{B}}=0$			0.2	mA
		BDT41B/C	$V_{\text{CE}}=60\text{V}; I_{\text{B}}=0$				
I_{EBO}	Emitter Cutoff Current		$V_{\text{EB}}=5\text{V}; I_{\text{C}}=0$			0.5	mA
$h_{\text{FE-1}}$	DC Current Gain		$I_{\text{C}}=0.3\text{A}; V_{\text{CE}}=4\text{V}$	30			
$h_{\text{FE-2}}$	DC Current Gain		$I_{\text{C}}=3\text{A}; V_{\text{CE}}=4\text{V}$	15		75	
f_{T}	Current-Gain—Bandwidth Product		$I_{\text{C}}=0.5\text{A}; V_{\text{CE}}=10\text{V}$	3			MHz
Switching Times							
t_{on}	Turn-On Time		$I_{\text{C}}=6\text{A}; I_{\text{B1}}=-I_{\text{B2}}=0.6\text{A}$		0.6		$\mu\text{ s}$
t_{off}	Turn-Off Time				1.0		$\mu\text{ s}$

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