

**Silicon NPN Power Transistors**

**BDT41F/AF/BF/CF**

**DESCRIPTION**

- DC Current Gain  $-h_{FE} = 30(\text{Min}) @ I_C = 0.3A$
- Collector-Emitter Sustaining Voltage-  
 :  $V_{CEO(\text{SUS})} = 40V(\text{Min})$ - BDT41F;  $60V(\text{Min})$ - BDT41AF  
 $80V(\text{Min})$ - BDT41BF;  $100V(\text{Min})$ - BDT41CF
- Complement to Type BDT42F/AF/BF/CF

**APPLICATIONS**

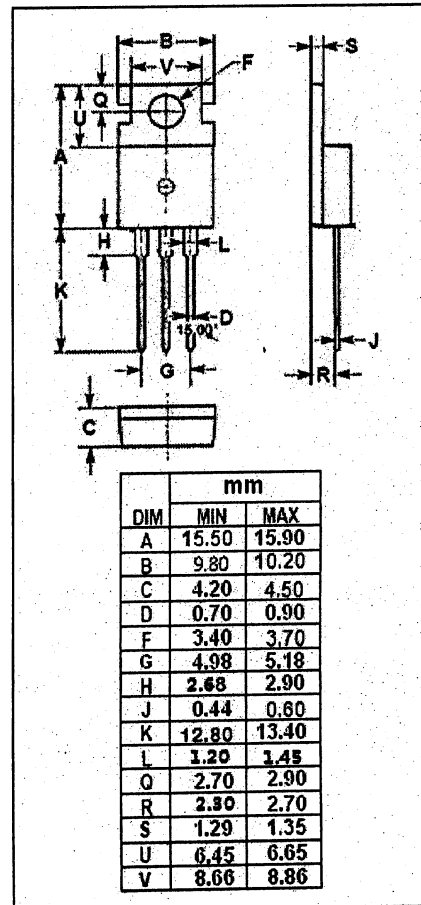
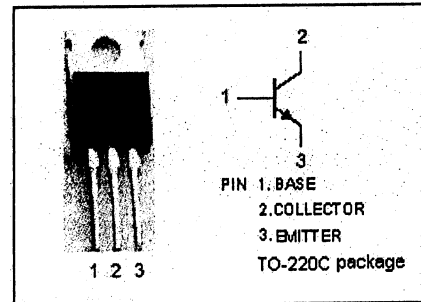
- Designed for use in general purpose amplifier and switching applications

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

SYMBOL	PARAMETER	VALUE	UNIT	
$V_{CBO}$	Collector-Base Voltage	BDT41F	80	V
		BDT41AF	100	
		BDT41BF	120	
		BDT41CF	140	
$V_{CEO}$	Collector-Emitter Voltage	BDT41F	40	V
		BDT41AF	60	
		BDT41BF	80	
		BDT41CF	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 $T_c=25^\circ\text{C}$	32	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	6.3	$^\circ\text{C/W}$



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**ELECTRICAL CHARACTERISTICS**

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

SYMBOL	PARAMETER		CONDITIONS	MIN	TYP.	MAX	UNIT
$V_{CE(SUS)}$	Collector-Emitter Sustaining Voltage	BDT41F	$I_C = 30\text{mA}; I_B = 0$	40			V
		BDT41AF		60			
		BDT41BF		80			
		BDT41CF		100			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage		$I_C = 6\text{A}; I_B = 0.6\text{A}$			1.5	V
$V_{BE(on)}$	Base-Emitter On Voltage		$I_C = 6\text{A}; V_{CE} = 4\text{V}$			2.0	V
$I_{CES}$	Collector Cutoff Current		$V_{CE} = V_{CE0max}; V_{BE} = 0$			0.4	mA
$I_{CEO}$	Collector Cutoff Current	BDT41F/AF	$V_{CE} = 30\text{V}; I_B = 0$			0.2	mA
		BDT41BF/CF	$V_{CE} = 60\text{V}; I_B = 0$				
$I_{EBO}$	Emitter Cutoff Current		$V_{EB} = 5\text{V}; I_C = 0$			0.5	mA
$h_{FE-1}$	DC Current Gain		$I_C = 0.3\text{A}; V_{CE} = 4\text{V}$	30			
$h_{FE-2}$	DC Current Gain		$I_C = 3\text{A}; V_{CE} = 4\text{V}$	15		75	
$f_T$	Current-Gain—Bandwidth Product		$I_C = 0.5\text{A}; V_{CE} = 10\text{V}$	3			MHz

**Switching Times**

$t_{on}$	Turn-On Time	$I_C = 6\text{A}; I_{B1} = -I_{B2} = 0.6\text{A}$		0.6		$\mu\text{s}$
$t_{off}$	Turn-Off Time			1.0		$\mu\text{s}$