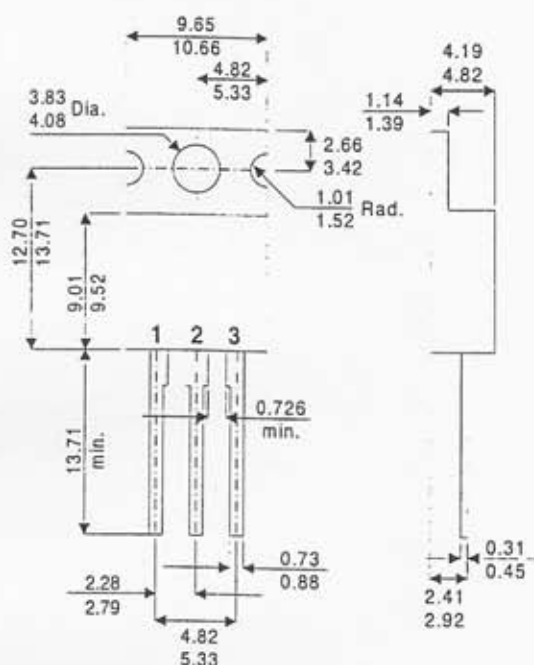


MECHANICAL DATA

Dimensions in mm



SILICON EPITAXIAL BASE NPN POWER TRANSISTORS

NPN Transistors in a plastic TO-220 package.

With their PNP complements BD950 ; 952 ; 954 and 956 they are intended for use in a wide range of power amplifiers and for switching applications.

TO-220AB TO220 Plastic Package

Pin 1 – Base Pin 2 – Collector Pin 3 – Emitter

Collector connected to Mounting Base.

ABSOLUTE MAXIMUM RATINGS

($T_{case} = 25^{\circ}C$ unless otherwise stated)

		BD949	BD951	BD953	BD955
V_{CBO}	Collector – Base Voltage	60V	80V	100V	120V
V_{CEO}	Collector – Emitter Voltage	60V	80V	100V	120V
V_{EBO}	Emitter – Base Voltage		5V		
I_C	Collector Current		5A		
I_{CM}	Peak Collector Current		8A		
P_{tot}	Total Power Dissipation	$T_{amb} \leq 25^{\circ}C$		40W	
T_{stg}	Storage Temperature Range			-65 to 150°C	
T_J	Maximum Junction Temperature			150°C	

ELECTRICAL CHARACTERISTICS ($T_{\text{case}} = 25^{\circ}\text{C}$ unless otherwise stated)

Parameter	Test Conditions	Min.	Typ.	Max.	Unit
V_{BE}^* Base – Emitter Voltage ¹	$I_{\text{C}} = 2\text{A}$ $V_{\text{CE}} = 4\text{V}$			1.4	V
$V_{\text{CE(sat)}}^*$ Collector – Emitter Saturation Voltage	$I_{\text{C}} = 2\text{A}$ $I_{\text{B}} = 0.2\text{A}$			1	V
I_{CBO} Collector Cut-off Current	$I_{\text{E}} = 0$ $V_{\text{CB}} = V_{\text{CBO(MAX)}}$			0.1	mA
	$I_{\text{E}} = 0$ $V_{\text{CB}} = \frac{1}{2}V_{\text{CBO(MAX)}}$ $T_{\text{J}} = 150^{\circ}\text{C}$			2	
	$I_{\text{B}} = 0$ $V_{\text{CE}} = \frac{1}{2}V_{\text{CEO(MAX)}}$			0.5	
I_{EBO} Emitter Cut-off Current	$I_{\text{C}} = 0$ $V_{\text{EB}} = 5\text{V}$			1	mA
h_{FE}^* DC Current Gain	$I_{\text{C}} = 0.5\text{A}$ $V_{\text{CE}} = 4\text{V}$	40			—
	$I_{\text{C}} = 2\text{A}$ $V_{\text{CE}} = 4\text{V}$	20			
f_{T} Transition Frequency	$I_{\text{C}} = 0.5\text{A}$ $V_{\text{CE}} = 4\text{V}$ $f = 1\text{MHz}$	3			MHz
t_{ON} Turn-on Time	$I_{\text{C(ON)}} = 1\text{A}$ $I_{\text{B(ON)}} = -I_{\text{B(OFF)}} = 0.1\text{A}$		0.3		μs
t_{OFF} Turn-off Time			1.5		

* Pulse Test: $t_{\text{p}} \leq 300\mu\text{s}$, $\delta < 2\%$

Note 1 V_{EB} decreases by about 2.3mV/K with increasing temperature.

THERMAL CHARACTERISTICS

$R_{\theta\text{J-MB}}$ Thermal Resistance Junction to Mounting Base			3.12	K/W
$R_{\theta\text{JA}}$ Thermal Resistance Junction to Ambient			70	K/W

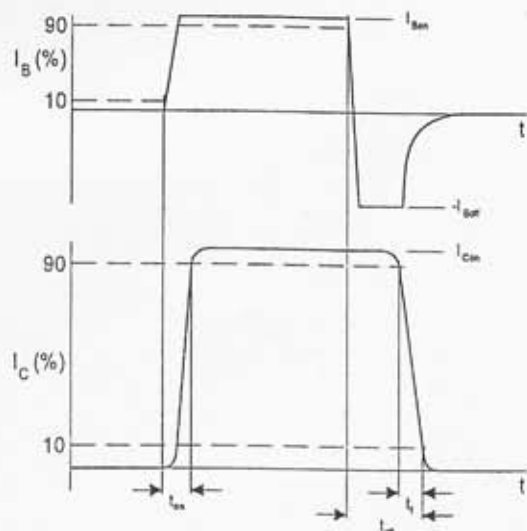


Fig. 1 Switching times waveforms.

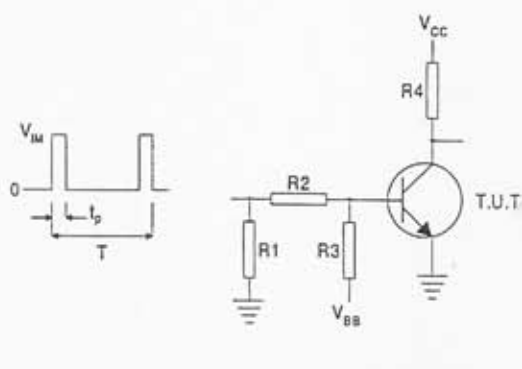


Fig. 2 Switching times test circuit.

$V_{\text{IM}} = 30\text{V}$
 $V_{\text{CC}} = 20\text{V}$
 $V_{\text{BB}} = -3.5\text{V}$
 $R1 = 82\Omega$
 $R2 = 150\Omega$
 $R3 = 39\Omega$
 $R4 = 20\Omega$
 $t_r = t_f \leq 15\text{ns}$
 $t_p = 10\mu\text{s}$
 $T = 500\mu\text{s}$