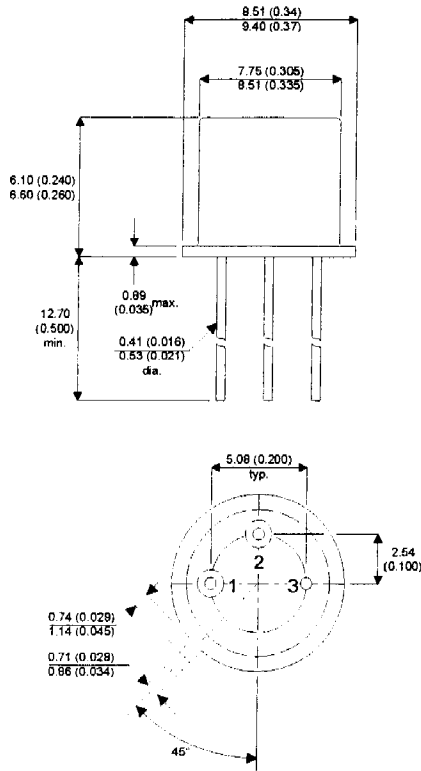


BFX38
BFX39
BFX40
BFX41

MECHANICAL DATA

Dimensions in mm (inches)



TO39 PACKAGE

Pin 1 = Emitter Pin 2 = Base Pin 3 = Collector

PNP SILICON EPITAXIAL TRANSISTOR

APPLICATIONS

- General Purpose Industrial Applications

DESCRIPTION

The BFX38-41 are Silicon Planar Epitaxial PNP transistors in Jedec TO39 metal case, designed for a wide variety of applications.

ABSOLUTE MAXIMUM RATINGS ($T_{case} = 25^{\circ}C$ unless otherwise stated)		BFX38	BFX40
		BFX39	BFX41
V_{CBO}	Collector – Base Voltage	-55V	-75V
V_{CEO}	Collector – Emitter Voltage	-55V	-75V
V_{EBO}	Emitter – Base Voltage		-5V
I_C	Collector Current		-1A
P_{tot}	Total Power Dissipation $T_{amb} < 25^{\circ}C$ $T_{case} < 25^{\circ}C$		0.8W
			4W
T_{stg}, T_j	Storage and Junction Temperature		-55 to 200°C



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

Parameter		Test Conditions		Min.	Typ.	Max.	Unit
I_{CBO}	Collector Cutoff Current	BFX38	$V_{CB} = -40\text{V}$ $I_E = 0$		-0.2	-50	nA
		BFX39	$T_{amb} = 125^\circ\text{C}$		-0.25	-50	μA
		BFX40	$V_{CB} = -50\text{V}$ $I_E = 0$		-0.2	-50	nA
		BFX41	$T_{amb} = 125^\circ\text{C}$		-0.25	-50	μA
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	BFX38	$I_C = -10\mu\text{A}$ $I_E = 0$	-55			V
		BFX39					
		BFX40	$I_C = -10\mu\text{A}$ $I_E = 0$	-75			
		BFX41					
$V_{CEO(SUS)^*}$	Collector Emitter Sustaining Voltage	BFX38	$I_C = -10\text{mA}$ $I_B = 0$	-55			V
		BFX39					
		BFX40	$I_C = -10\text{mA}$ $I_B = 0$	-75			
		BFX41					
$V_{(BR)EBO}$	Emitter - Base Breakdown Voltage	ALL	$I_E = -10\mu\text{A}$ $I_C = 0$	-5			V
$V_{CE(SAT)^*}$	Collector- Emitter Saturation Voltage	ALL	$I_C = -150\text{mA}$ $I_B = -15\text{mA}$ $I_C = -500\text{mA}$ $I_B = -50\text{mA}$		-0.12 -0.3	-0.15 -0.5	V
$V_{BE(SAT)^*}$	Base - Emitter Saturation Voltage	ALL	$I_C = -150\text{mA}$ $I_B = -15\text{mA}$ $I_C = -500\text{mA}$ $I_B = -50\text{mA}$		-0.8 -0.9	-0.9 -1.1	V
h_{FE}^*	DC Current Gain	BFX38 BFX40					—
		$I_C = -100\mu\text{A}$	$V_{CE} = -5\text{V}$	60	90		
		$I_C = -100\text{mA}$	$V_{CE} = -5\text{V}$	85	130		
		$I_C = -500\text{mA}$	$V_{CE} = -5\text{V}$	60	120		
		BFX39 BFX41					
		$I_C = -100\mu\text{A}$	$V_{CE} = -5\text{V}$	30	45		
		$I_C = -100\text{mA}$	$V_{CE} = -5\text{V}$	40	70		
		$I_C = -500\text{mA}$	$V_{CE} = -5\text{V}$	25	65		
		$I_C = -1\text{A}$	$V_{CE} = -5\text{V}$				
		BFX38		30			
BFX39		15					
BFX40		25					
BFX41		10					
	$I_C = -100\text{mA}$ $V_{CE} = -5\text{V}$ $T_{amb} = -55^\circ\text{C}$						
BFX38 BFX40		30					
BFX39 BFX41		15					

BFX38
BFX39
BFX40
BFX41

Parameter		Test Conditions	Min.	Typ.	Max.	Unit
f_T	Transitions Frequency	$I_C = -50\text{mA}$ $V_{CE} = -10\text{V}$ $f = 100\text{MHz}$	100	150		MHz
C_{EBO}	Emitter - Base Capacitance	$I_C = 0$ $V_{EB} = -0.5\text{V}$ $f = 1\text{MHz}$		75	120	pF
C_{CBO}	Collector - Base Capacitance	$I_E = 0$ $V_{CB} = -0.5\text{V}$ $f = 1\text{MHz}$		15	20	
t_{on}	Turn-on time	$I_C = -500\text{mA}$ $V_{CC} = -30\text{V}$ $I_{B1} = -50\text{mA}$		33	100	ns
t_s	Storage Time	$I_C = -500\text{mA}$ $V_{CC} = -30\text{V}$ $I_{B1} = I_{B2} = -50\text{mA}$		160	350	
t_f	Fall Time	$I_C = -500\text{mA}$ $V_{CC} = -30\text{V}$ $I_{B1} = -I_{B2} = -50\text{mA}$		27	50	

* Pulsed: pulse duration = 300 μ s, duty cycle = 1%

THERMAL CHARACTERISTICS

$R_{\theta(j\text{-case})}$	Thermal Resistance Junction to case			44	$^{\circ}\text{C/W}$
$R_{\theta(j\text{-amb})}$	Thermal Resistance Junction to ambient			219	$^{\circ}\text{C/W}$