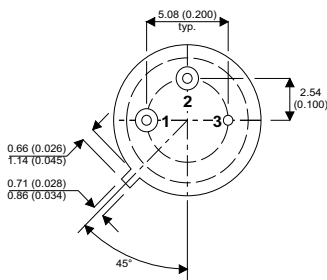
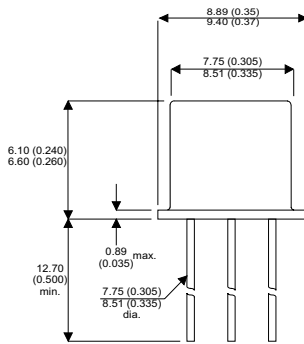


MECHANICAL DATA

Dimensions in mm (inches)

PNP SILICON EPITAXIAL TRANSISTOR



TO39 PACKAGE

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

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 BFX39	BFX40 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			V
	BFX41				
$V_{CEO(SUS)*}$ Collector Emitter Sustaining Voltage	BFX38 $I_C = -10\text{mA}$ $I_E = 0$	-55			V
	BFX39				
	BFX40 $I_C = -10\text{mA}$ $I_E = 0$	-75			V
	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 $I_C = -150\text{mA}$ $I_E = -15\text{mA}$		-0.12	-0.15	V
	$I_C = -500\text{mA}$ $I_E = -50\text{mA}$		-0.3	-0.5	
$V_{BE(SAT)*}$ Base - Emitter Saturation Voltage	ALL $I_C = -150\text{mA}$ $I_E = -15\text{mA}$		-0.8	-0.9	V
	$I_C = -500\text{mA}$ $I_E = -50\text{mA}$		-0.9	-1.1	
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				

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

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

THERMAL CHARACTERISTICS

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