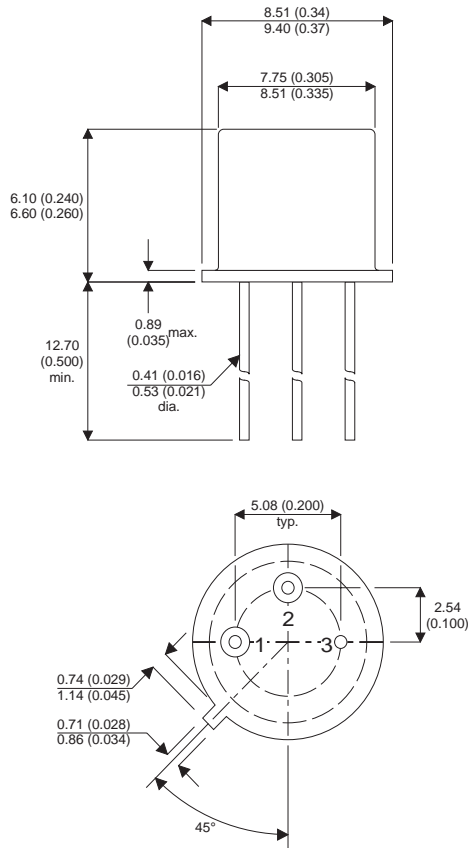


MECHANICAL DATA

Dimensions in mm (inches)



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.

TO39 PACKAGE

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

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

Semelab Plc reserves the right to change test conditions, parameter limits and package dimensions without notice. Information furnished by Semelab is believed to be both accurate and reliable at the time of going to press. However Semelab assumes no responsibility for any errors or omissions discovered in its use. Semelab encourages customers to verify that datasheets are current before placing orders.

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 $I_C = -150\text{mA}$ $I_B = -15\text{mA}$		-0.12	-0.15	V
	$I_C = -500\text{mA}$ $I_B = -50\text{mA}$		-0.3	-0.5	
$V_{BE(SAT)*}$ Base - Emitter Saturation Voltage	ALL $I_C = -150\text{mA}$ $I_B = -15\text{mA}$		-0.8	-0.9	V
	$I_C = -500\text{mA}$ $I_B = -50\text{mA}$		-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				

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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	$I_E = 0$ $f = 1\text{MHz}$	$V_{CB} = -0.5\text{V}$		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	$^{\circ}\text{C/W}$