Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!

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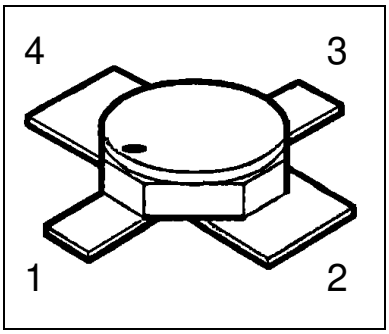
HiRel NPN Silicon RF Transistor



- ***HiRel* Discrete and Microwave Semiconductor**
- For low noise, high-gain amplifiers up to 2GHz.
- For linear broadband amplifiers
- Hermetically sealed microwave package
- f_T= 8 GHz
  F = 2.3 dB at 2 GHz
- **esa Space Qualified**
  ESA/SCC Detail Spec. No.: 5611/006
  Type Variant No. 06

ESD: **E**lectro**s**tatic **d**ischarge sensitive device,
observe handling precautions!

Type	Marking	Ordering Code	Pin Configuration				Package
			1	2	3	4	
BFY193 (ql)	-	see below	C	E	B	E	Micro-X1

(ql) Quality Level: P: Professional Quality
H: High Rel Quality
S: Space Quality
ES: ESA Space Quality

(see order instructions for ordering example)

Maximum Ratings

Parameter	Symbol	Values	Unit
Collector-emitter voltage	V_{CEO}	12	V
Collector-emitter voltage, V_{BE}=0	V_{CES}	20	V
Collector-base voltage	V_{CBO}	20	V
Emitter-base voltage	V_{EBO}	2	V
Collector current	I_C	80	mA
Base current	I_B	10 [1)]	mA
Total power dissipation, $T_S \leq 104°C$ [2), 3)]	P_{tot}	580	mW
Junction temperature	T_j	200	°C
Operating temperature range	T_{op}	-65...+200	°C
Storage temperature range	T_{stg}	-65...+200	°C

Thermal Resistance

Junction-soldering point [3)]	$R_{th\ JS}$	< 165	K/W

Notes.:

1) The maximum permissible base current for V_{FBE} measurements is 30mA (spot-measurement duration < 1s)

2) At T_S = + 104 °C. For T_S > + 104 °C derating is required.

3) T_S is measured on the collector lead at the soldering point to the pcb.

Electrical Characteristics

at T_A=25°C; unless otherwise specified

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Collector-base cutoff current V_{CB} = 20 V, I_E = 0	I_{CBO}	-	-	100	µA
Collector-emitter cutoff current V_{CE} = 12 V, I_B = 0,5µA [1.)]	I_{CEX}	-	-	600	µA
Collector-base cutoff current V_{CB} = 10 V, I_E = 0	I_{CBO}	-	-	50	nA
Emitter base cuttoff current V_{EB} = 2 V, I_C = 0	I_{EBO}	-	-	25	µA
Emitter base cuttoff current V_{EB} = 1 V, I_C = 0	I_{EBO}	-	-	0.5	µA

Notes:

1.) This Test assures $V_{(BR)CE0}$ > 12V

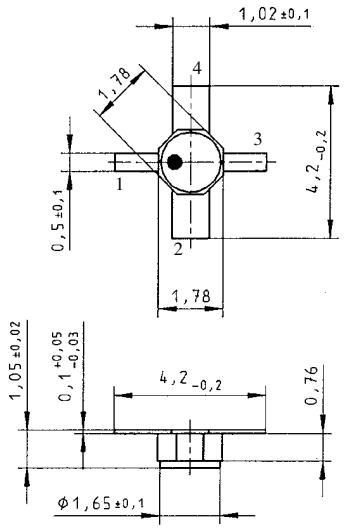
Electrical Characteristics (continued)

Parameter	Symbol	Values			Unit
		min.	typ.	max.	
DC Characteristics					
Base-Emitter forward voltage I_E = 30 mA, I_C = 0	V_{FBE}	-	-	1	V
DC current gain I_C = 30 mA, V_{CE} = 8 V	h_{FE}	50	100	175	-
AC Characteristics					
Transition frequency I_C = 40mA, V_{CE} = 5 V, f = 500 MHz I_C = 50 mA, V_{CE} = 8 V, f = 500 MHz	f_T	 6,5 -	 7.5 8	 - -	GHz
Collector-base capacitance V_{CB} = 10 V, V_{BE} = vbe = 0, f = 1 MHz	C_{CB}	-	0.56	0.75	pF
Collector-emitter capacitance V_{CE} = 10 V, V_{BE} = vbe = 0, f = 1 MHz	C_{CE}	-	0.34	-	pF
Emitter-base capacitance V_{EB} = 0.5V, V_{CB} = vcb = 0, f = 1 MHz	C_{EB}	-	1.9	2.4	pF
Noise Figure I_C = 15 mA, V_{CE} = 5 V, f = 2 GHz, $Z_S = Z_{Sopt}$	F	-	2.3	2.9	dB
Power gain I_C = 40 mA, V_{CE} = 5V, f = 2 GHz $Z_S = Z_{Sopt}$, $Z_L = Z_{Lopt}$	Gma [1.)]	12.5	13.5	-	dB
Transducer gain I_C = 40 mA, V_{CE} = 5 V, f = 2 GHz $Z_S = Z_L$ = 50 Ω	$\|S_{21e}\|^2$	8	9	-	dB
Output Power I_C = 50 mA, V_{CE} = 5 V, f = 2GHz, P_{IN}=10dBm, $Z_S = Z_L$ = 50 Ω	P_{OUT}	16.5	17.5	-	dBm

Notes.:

1.) $G_{ma} = \left|\frac{S21}{S12}\right|(k - \sqrt{k^2 - 1})$, $G_{ms} = \left|\frac{S21}{S12}\right|$

Micro-X1 Package



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