



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.

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## Contact us

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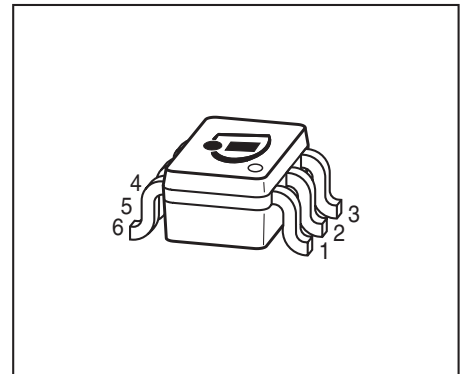
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**NPN Silicon RF Transistor**

- For broadband amplifiers up to 1 GHz at collector currents from 1 mA to 20 mA
- BFS17S: For orientation in reel see package information below
- Pb-free (RoHS compliant) package



**ESD (Electrostatic discharge) sensitive device, observe handling precaution!**

Type	Marking	Pin Configuration						Package
BFS17S	MCs	1=B1	2=E1	3=C2	4=B2	5=E2	6=C1	SOT363

**Maximum Ratings** at  $T_A = 25\text{ °C}$ , unless otherwise specified

Parameter	Symbol	Value	Unit
Collector-emitter voltage	$V_{CEO}$	15	V
Collector-base voltage	$V_{CBO}$	25	
Emitter-base voltage	$V_{EBO}$	2.5	
Collector current	$I_C$	25	mA
Peak collector current, $f = 10\text{ MHz}$	$I_{CM}$	50	
Total power dissipation <sup>1)</sup> $T_S \leq 93\text{ °C}$	$P_{tot}$	280	mW
Junction temperature	$T_J$	150	°C
Ambient temperature	$T_A$	-65 ... 150	
Storage temperature	$T_{Stg}$	-65 ... 150	

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Junction - soldering point <sup>2)</sup>	$R_{thJS}$	$\leq 240$	K/W

<sup>1)</sup>  $T_S$  is measured on the collector lead at the soldering point to the pcb

<sup>2)</sup> For calculation of  $R_{thJA}$  please refer to Application Note AN077 (Thermal Resistance Calculation)

**Electrical Characteristics** at  $T_A = 25^\circ\text{C}$ , unless otherwise specified

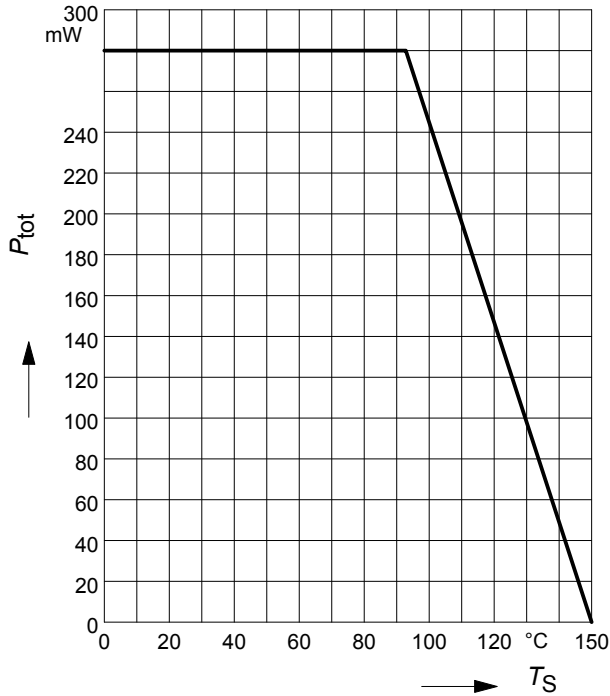
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>DC Characteristics</b>					
Collector-emitter breakdown voltage $I_C = 1\text{ mA}, I_B = 0$	$V_{(BR)CEO}$	15	-	-	V
Collector-base cutoff current $V_{CB} = 10\text{ V}, I_E = 0$ $V_{CB} = 25\text{ V}, I_E = 0$	$I_{CBO}$	-	-	0.05 10	$\mu\text{A}$
Emitter-base cutoff current $V_{EB} = 2.5\text{ V}, I_C = 0$	$I_{EBO}$	-	-	100	
DC current gain $I_C = 2\text{ mA}, V_{CE} = 1\text{ V}$ , pulse measured $I_C = 25\text{ mA}, V_{CE} = 1\text{ V}$ , pulse measured	$h_{FE}$	40 20	- 70	150 -	-
Collector-emitter saturation voltage $I_C = 10\text{ mA}, I_B = 1\text{ mA}$	$V_{CEsat}$	-	0.1	0.4	V

**Electrical Characteristics at  $T_A = 25^\circ\text{C}$ , unless otherwise specified**

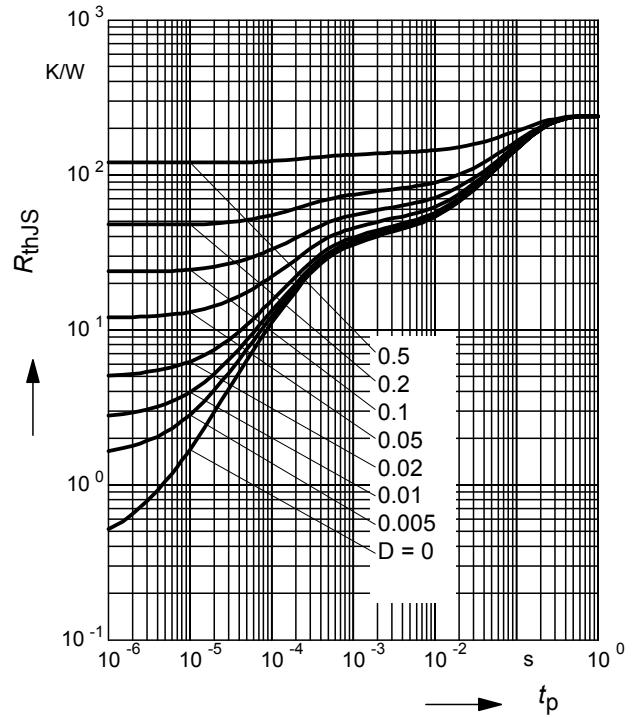
Parameter	Symbol	Values			Unit
		min.	typ.	max.	
<b>AC Characteristics (verified by random sampling)</b>					
Transition frequency $I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $f = 200\text{ MHz}$ $I_C = 25\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $f = 200\text{ MHz}$	$f_T$	1 1.3	1.4 2.5	- -	GHz
Collector-base capacitance $V_{CB} = 5\text{ V}$ , $f = 1\text{ MHz}$ , $V_{BE} = 0$ , emitter grounded	$C_{cb}$	-	0.55	0.8	pF
Collector emitter capacitance $V_{CE} = 5\text{ V}$ , $f = 1\text{ MHz}$ , $V_{BE} = 0$ , base grounded	$C_{ce}$	-	0.2	-	
Emitter-base capacitance $V_{EB} = 0.5\text{ V}$ , $f = 1\text{ MHz}$ , $V_{CB} = 0$ , collector grounded	$C_{eb}$	-	0.9	1.45	
Minimum noise figure $I_C = 2\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $Z_S = 50\ \Omega$ , $f = 800\text{ MHz}$	$NF_{\min}$	-	3	5	dB
Transducer gain $I_C = 20\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $Z_S = Z_L = 50\ \Omega$ , $f = 500\text{ MHz}$	$ S_{21e} ^2$	-	14	-	dB
Third order intercept point at output $V_{CE} = 5\text{ V}$ , $I_C = 20\text{ mA}$ , $f = 800\text{ MHz}$ , $Z_S = Z_{Sopt}$ , $Z_L = Z_{Lopt}$	$IP_3$	-	22.5	-	dBm
1dB compression point $I_C = 20\text{ mA}$ , $V_{CE} = 5\text{ V}$ , $Z_S = Z_L = 50\ \Omega$ , $f = 800\text{ MHz}$	$P_{-1dB}$	-	11	-	-



**Total power dissipation  $P_{tot} = f(T_S)$**

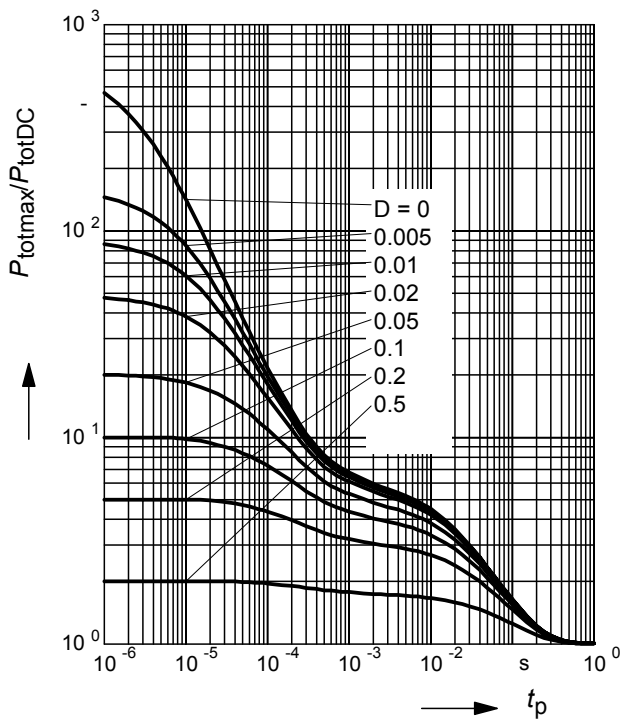


**Permissible Pulse Load  $R_{thJS} = f(t_p)$**



**Permissible Pulse Load**

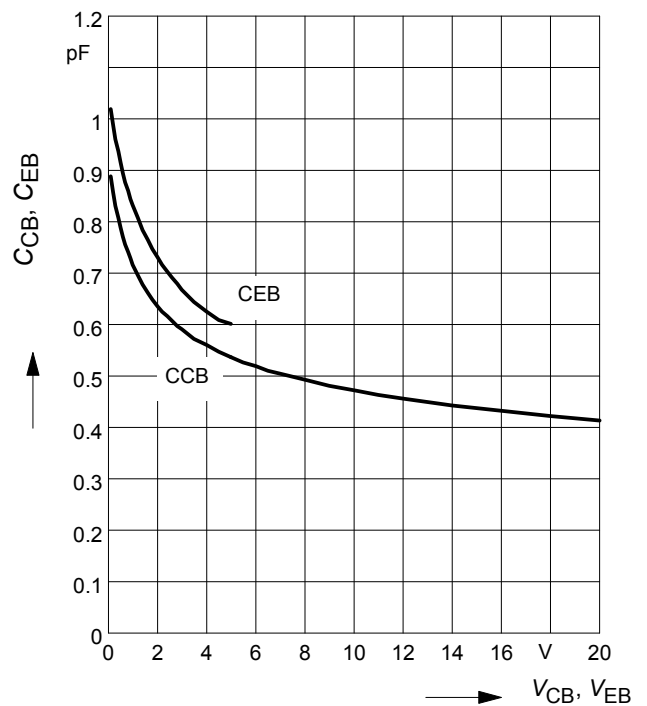
$P_{totmax}/P_{totDC} = f(t_p)$



**Collector-base capacitance  $C_{cb} = f(V_{CB})$**

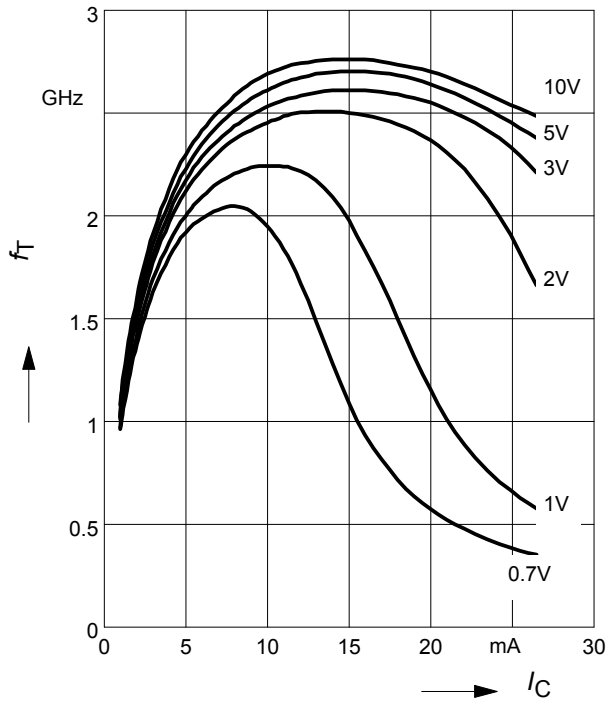
**Emitter-base capacitance  $C_{eb} = f(V_{EB})$**

$f = 1 \text{ MHz}$

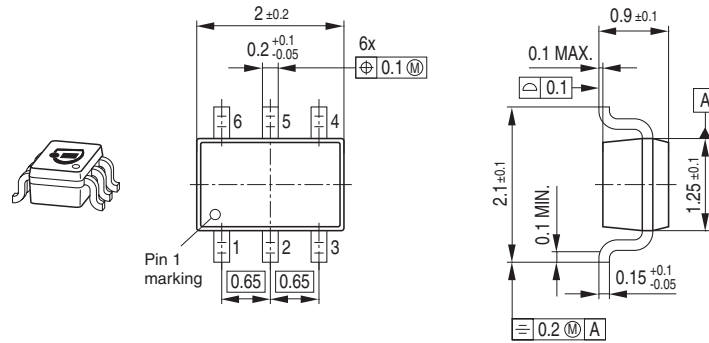


Transition frequency  $f_T = f(I_C)$

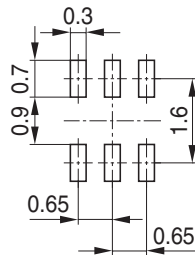
$V_{CE}$  = parameter



### Package Outline

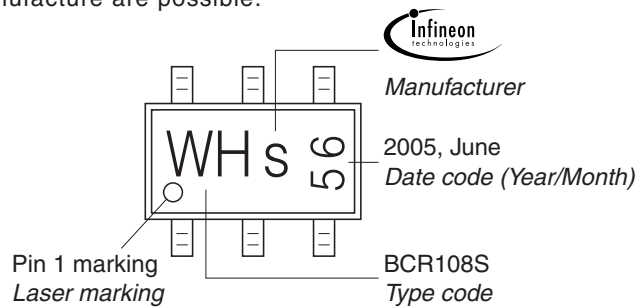


### Foot Print



### Marking Layout (Example)

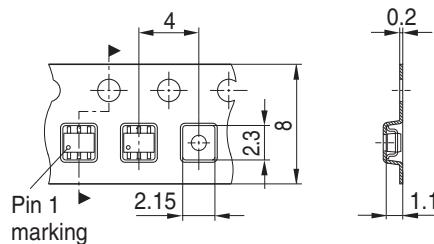
Small variations in positioning of Date code, Type code and Manufacturer are possible.



### Standard Packing

Reel  $\varnothing$ 180 mm = 3.000 Pieces/Reel  
 Reel  $\varnothing$ 330 mm = 10.000 Pieces/Reel

For symmetric types no defined Pin 1 orientation in reel.



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