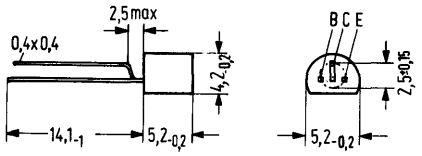
PNP Silicon Planar Transistors

BC 636
BC 638
BC 640

BC 636, BC 638, and BC 640 are epitaxial PNP silicon planar transistors in TO 92 plastic package (10 A 3 DIN 41 868). The transistors are suitable for use as complementary transistors to BC 635, BC 637, and BC 639.

Type	Ordering code
BC 636[2]	Q68000-A3365
BC 636 paired	Q68000-A3365-P1
BC 636/BC 635 paired	Q68000-A3362-P1
BC 638[2]	Q68000-A3366
BC 638 paired	Q68000-A3366-P1
BC 638/BC 637 paired	Q68000-A3363-P1
BC 640[2]	Q68000-A3367
BC 640 paired	Q68000-A3367-P1
BC 640/BC 639 paired	Q68000-A3364-P1



Mounting instruction:
Fixing hole dia 0.6
Approx. weight 0.25 g
Dimensions in mm

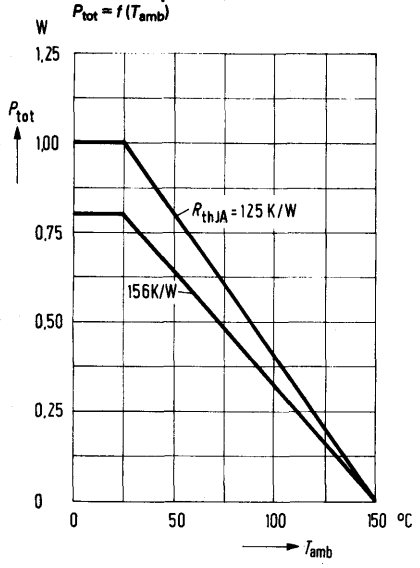
Maximum ratings		BC 636	BC 638	BC 640	
Collector-emitter voltage (R_{BE} = 1 kΩ)	$-V_{CER}$	45	60	100	V
Collector-emitter voltage	$-V_{CES}$	45	60	100	V
Collector-emitter voltage	$-V_{CEO}$	45	60	80	V
Emitter-base voltage	$-V_{EBO}$	5	5	5	V
Collector current	$-I_C$	1	1	1	A
Collector peak current	$-I_{CM}$	1.5	1.5	1.5	A
Base current	$-I_B$	100	100	100	mA
Junction temperature	T_j	150	150	150	°C
Storage temperature range	T_{stg}	−65 to +150			°C
Total power dissipation[1] (T_{amb} = 25 °C)	P_{tot}	0.8 (1)	0.8 (1)	0.8 (1)	W
Thermal resistance					
Junction to ambient air[1]	R_{thJA}	156	156	156	K/W
Junction to case	R_{thJC}	55	55	55	K/W

1) If the transistors with max. 3 mm lead length are fixed on PCBs with a min. 10 mm x 10 mm large copper area for the collector terminal, R_{thJA} = 125 K/W and thus $P_{tot\ max}$ (T_{amb} = 25 °C) = 1 W.

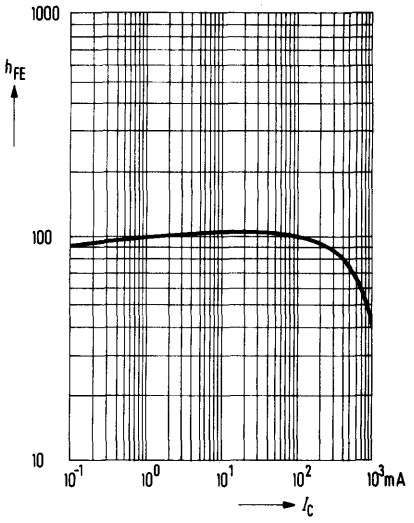
2) If the order does not include any exact indication of the current amplification group desired, a transistor of a current amplification group just available from stock will be delivered.

Static characteristics (T_{amb} = 25 °C)		BC 636	BC 638	BC 640	
Collector-emitter saturation voltage ($-I_C$ = 500 mA, $-I_B$ = 50 mA)	$-V_{CEsat}$	≦0.5	≦0.5	≦0.5	V
Collector cutoff current ($-V_{CB}$ = 30 V)	$-I_{CBO}$	≦100	≦100	≦100	nA
Collector cutoff current ($-V_{CB}$ = 30 V, T_j = 125 °C)	$-I_{CBO}$	≦10	≦10	≦10	µA
Emitter cutoff current ($-V_{EB}$ = 5 V)	$-I_{EBO}$	≦10	≦10	≦10	µA
Base-emitter voltage ($-V_{CE}$ = 2 V, $-I_C$ = 500 mA)	$-V_{BE}$	≦1	≦1	≦1	V
Collector-emitter breakdown voltage ($-I_{CEO}$ = 10 mA)	$V_{(BR)CEO}$	45	60	80	V
DC current gain					
$-I_C$ = 5 mA, $-V_{CE}$ = 2 V	h_{FE}	>25	>25	>25	–
$-I_C$ = 150 mA, $-V_{CE}$ = 2 V	h_{FE}	40-250	40-160	40-160	–
$-I_C$ = 500 mA, $-V_{CE}$ = 2 V	h_{FE}	>25	>25	>25	–
Condition for matching pairs (I_C = 150 mA; V_{CE} = 2 V)	$\frac{h_{FE1}}{h_{FE2}}$	1.3 (<1.6)	1.3 (<1.6)	1.3 (<1.6)	–
Dynamic characteristics (T_{amb} = 25 °C)					
Transition frequency $-V_{CE}$ = 5 V, $-I_C$ = 10 mA	f_T	130	130	130	MHz

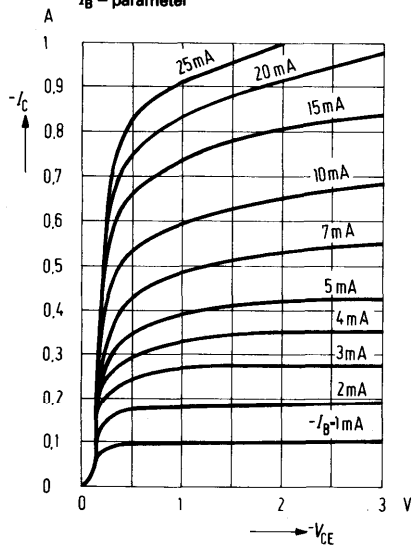
Total perm. power dissipation versus temperature
$P_{tot} = f(T_{amb})$



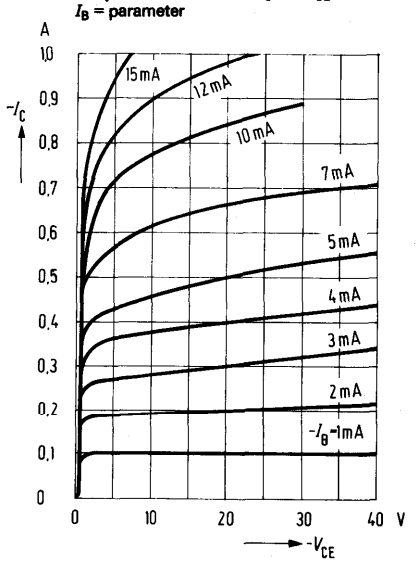
DC current gain $h_{FE} = f(I_C)$; $-V_{CE} = 2$ V



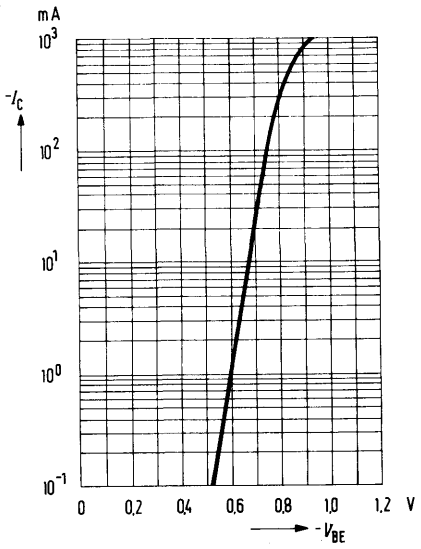
Output characteristics $I_C = f(V_{CE})$
I_B = parameter



Output characteristics $I_C = f(V_{CE})$
I_B = parameter



Collector current $I_C = f(V_{BE})$



Collector-emitter saturation voltage
$V_{CEsat} = f(I_C)$