SILICON PLANAR NPN

BC 377
BC 378

AUDIO DRIVERS OR OUTPUT STAGES

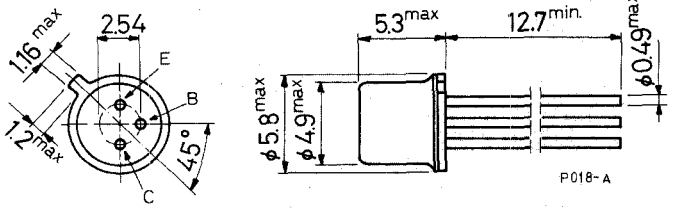
The BC 377 and BC 378 are silicon planar epitaxial NPN transistors in TO-18 metal case. They are particularly intended for use in high current, high gain applications, in driver stages of hi-fi equipments or in output stages of low power class B amplifiers. The complementary PNP types are the BC 297 and BC 298, respectively.

ABSOLUTE MAXIMUM RATINGS

		BC 377	BC 378
V_{CES}	Collector-emitter voltage ($V_{EB} = 0$)	50 V	30 V
V_{CEO}	Collector-emitter voltage ($I_B = 0$)	45 V	25 V
V_{EBO}	Emitter-base voltage ($I_C = 0$)	6 V	
I_E	Emitter current	-1.2 A	
I_C	Collector current	1 A	
I_B	Base current	0.2 A	
P_{tot}	Total power dissipation at $T_{amb} \leq 25$ °C	375 mW	
	at $T_{case} \leq 75$ °C	1 W	
T_{stg}	Storage temperature	-65 to 175 °C	
T_j	Junction temperature	175 °C	

MECHANICAL DATA

Dimensions in mm



(sim. to **TO-18**)

BC 377
BC 378

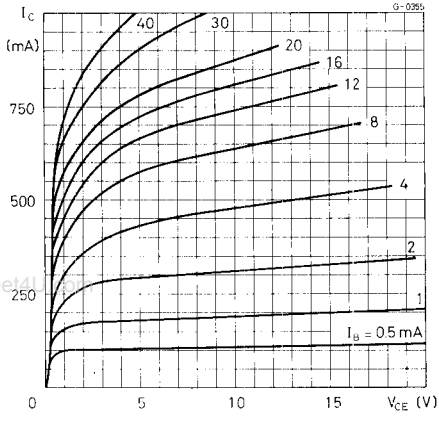
THERMAL DATA

$R_{th\ j-case}$	Thermal resistance junction-case	max	100	°C/W
$R_{th\ j-amb}$	Thermal resistance junction-ambient	max	400	°C/W

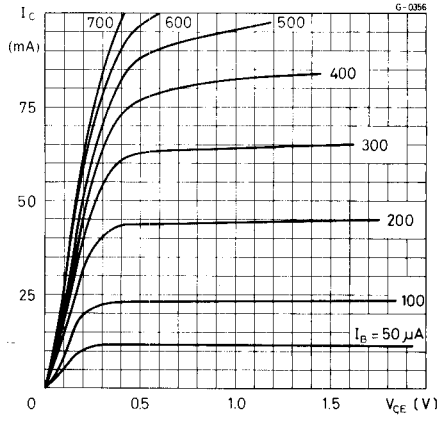
ELECTRICAL CHARACTERISTICS (T_{case} = 25 °C unless otherwise specified)

Parameter		Test conditions	Min.	Typ.	Max.	Unit
I_{CES}	Collector cutoff current (V_{BE} = 0)	for **BC 377** V_{CE} = 50 V			15	nA
		for **BC 378** V_{CE} = 30 V			15	nA
$V_{(BR)\ EBO}$	Emitter-base breakdown voltage (I_C = 0)	I_E = 10 μA	6			V
$V_{(BR)\ CEO}$	Collector-emitter breakdown voltage (I_B = 0)	I_C = 2 mA				
		for **BC 377**	45			V
		for **BC 378**	25			V
$V_{CE\ (sat)}$	Collector-emitter saturation voltage	I_C = 500 mA I_B = 50 mA			0.7	V
V_{BE}	Base-emitter voltage	I_C = 100 mA V_{CE} = 1 V		740		mV
$V_{BE\ (sat)}$	Base-emitter saturation voltage	I_C = 500 mA I_B = 50 mA			1.2	V
h_{FE}	DC current gain Gr. 6	I_C = 100 mA V_{CE} = 1 V	75		150	—
	Gr. 7	I_C = 100 mA V_{CE} = 1 V	125		260	—
		I_C = 300 mA V_{CE} = 1 V	40			—
h_{FE_1}/h_{FE_2}	Matched pair ratio	I_C = 100 mA V_{CE} = 1 V			1.41	—
f_T	Transition frequency	I_C = 50 mA V_{CE} = 10 V		300		MHz
C_{CBO}	Collector-base capacitance	I_E = 0 V_{CB} = 10 V		8		pF
C_{EBO}	Emitter-base capacitance	I_C = 0 V_{EB} = 0.5 V		30		pF

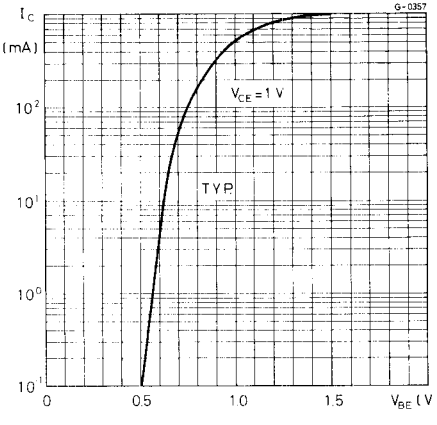
Typical output characteristics



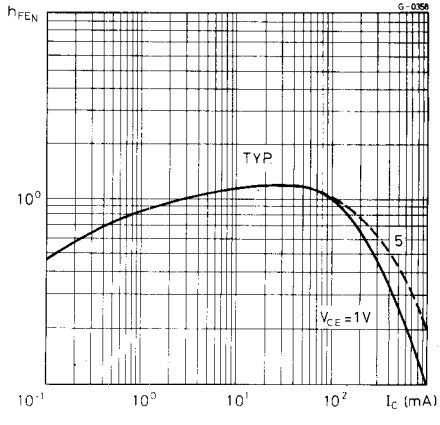
Typical output characteristics



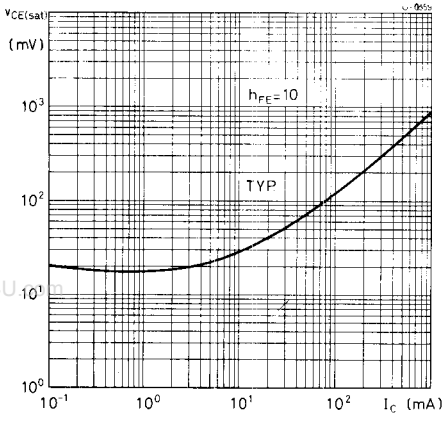
DC transconductance



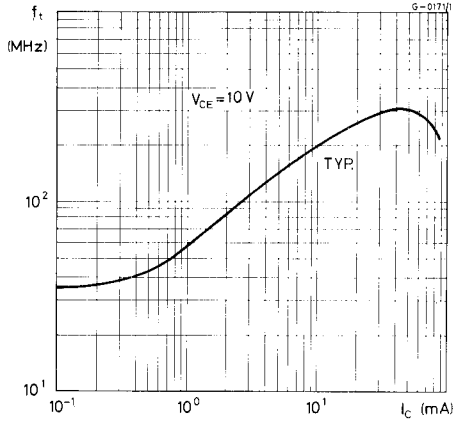
DC normalized current gain



Collector-emitter saturation voltage



Transition frequency



Power rating chart