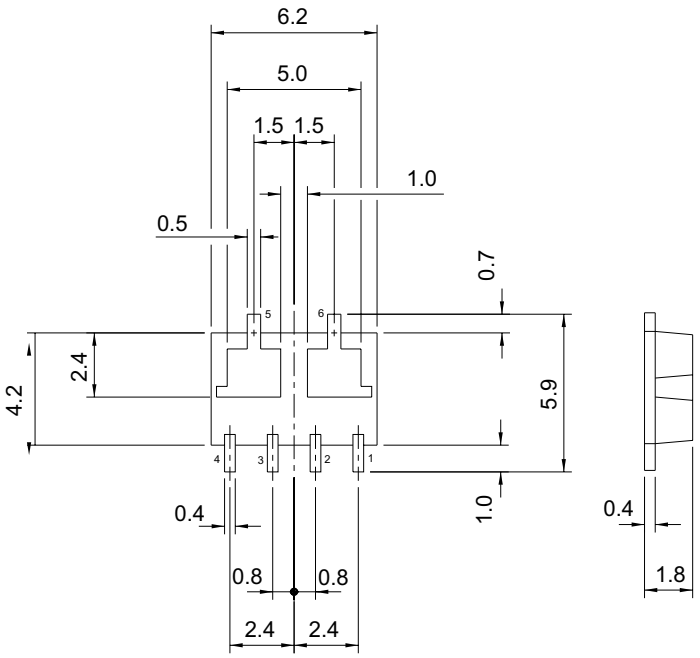
BCU83D

MECHANICAL DATA
Dimensions in mm



1: Base 1
2: Emitter 1
3: Emitter 2
4: Base 2
5: Collector 2
6: Collector 1

NPN EPITAXIAL PLANAR SILICON TRANSISTOR

Ideal For High current Switching Application

FEATURES

- **LOW $V_{CE(SAT)}$**
- **HIGH CURRENT CAPACITY**
- **FAST SWITCHING SPEED**

ABSOLUTE MAXIMUM RATINGS (T_{case} = 25°C unless otherwise stated)

V_{CBO}	Collector – Base voltage	60V
V_{CEO}	Collector – Emitter voltage (I_B = 0)	20V
V_{EBO}	Emitter – Base voltage	6V
I_C	Collector current	5A
I_{CP}	Collector Current (Pulse)	8A
I_B		1A
P_C	Collector Dissipation	
	(Mounted on Ceramic Board (750mm^2 x 0.8mm)	1.5W
P_T	Total Dissipation	
	(Mounted on Ceramic Board (750mm^2 x 0.8mm)	2W
T_j	Junction Temperature	150°C
T_{stg}	Storage Temperature	–55 to 150°C

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MAGNA TEC

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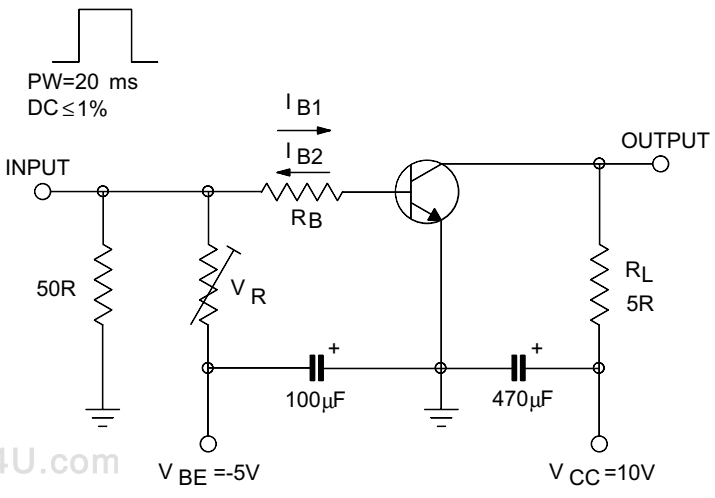
DYNAMICS CHARACTERISTICS (T_{case} = 25°C unless otherwise stated)

Parameter		Test Conditions		Min.	Typ.	Max.	Unit.
$V_{(BR)CEO}$	Collector – Emitter Base Breakdown Voltage	I_C = 1mA	R_{BE} = 00	20			V
$V_{(BR)CBO}$	Collector – Base Breakdown Voltage	I_C = 10µA	I_E = 0	60			V
$V_{(BR)EBO}$	Emitter Base Breakdown Voltage	I_E = – 10µA	I_C = 0	6			V
I_{CBO}	Collector Cut–Off Current	V_{CB} = 50V	I_E = 0			100	nA
I_{EBO}	Emitter Cut–Off Current	V_{EB} = 5V	I_C = 0			100	
h_{FE1}*	DC Current Gain	V_{CE} = 2V	I_C = 500mA	160		560	—
h_{FE2}*	DC Current Gain	V_{CE} = 2V	I_C = 3A	95			
h_{FE}	DC Current Gain Ratio (small/large)	V_{CE} = 2V	I_C = 500mA	0.8			
$V_{CE(sat)}$	Collector – Emitter SaturationVoltage	I_C = 3A	I_B = 60mA		220	500	mV
$V_{BE(sat)}$	Base – Emitter Saturation Voltage	I_C = 3A	I_B = 60mA		1	1.5	V
f_T	Gain Bandwidth Product	V_{CE} = 10V	I_C = 500mA		220		MHz
C_{ob}	Output Capacitance	V_{CB} = 10V	f = 1MHz		45	1	pF
t_{on}	Turn – On Time	See specified test circuit			30		ns
t_{stg}	Storage Time	See specified test circuit			300		
t_f	Fall Time	See specified test circuit			40		

Switching Time Test Circuit



$10I_{B1} = -10I_{B2} = I_C = 2A$

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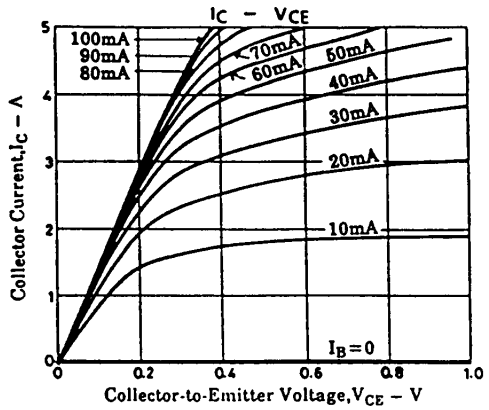

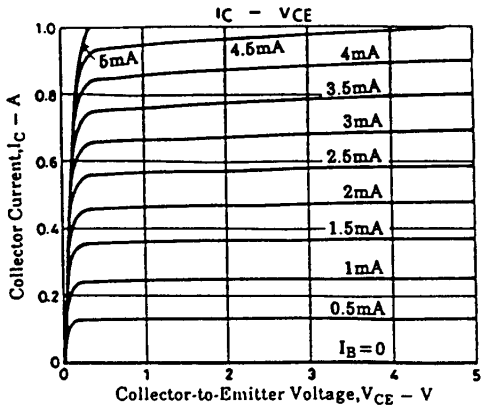

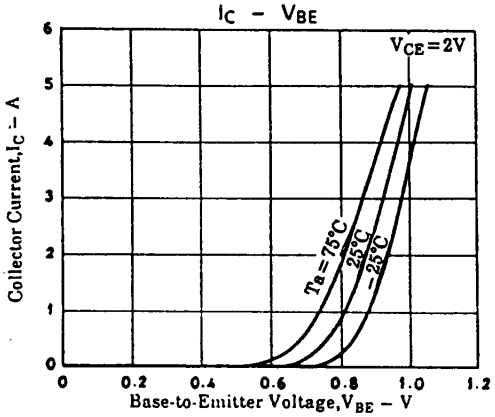

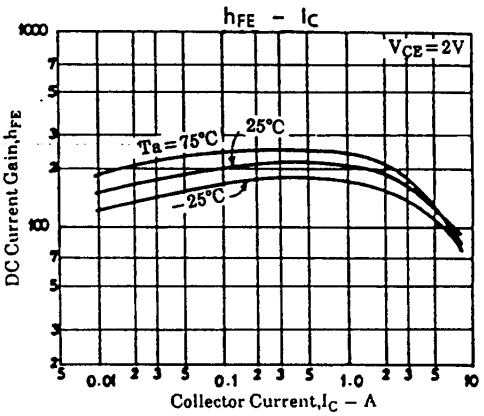

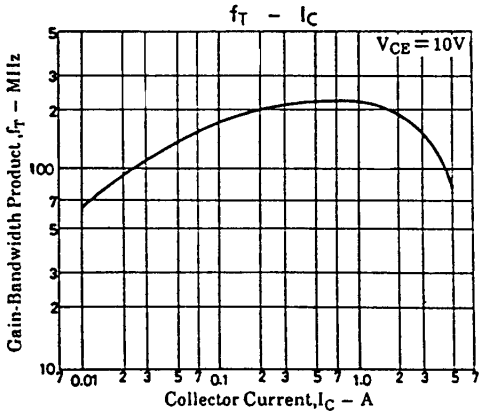

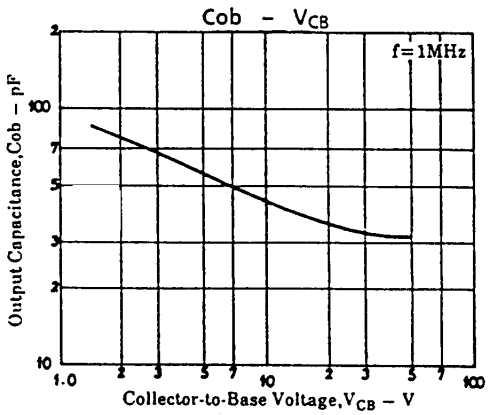

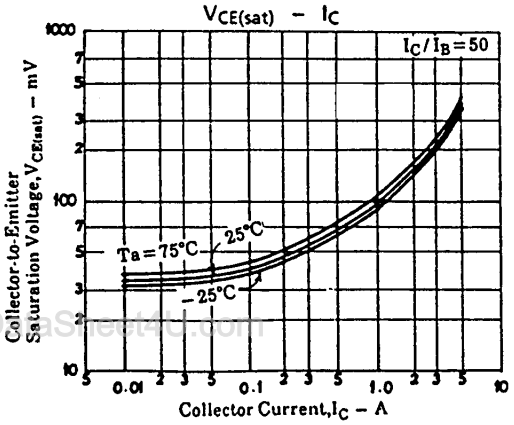

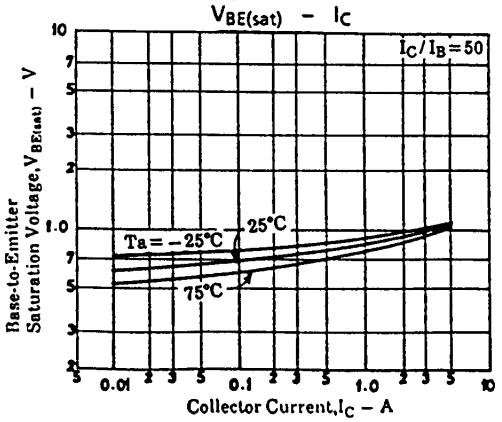

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