Micro Commercial Components

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BC846BPN

PNP and NPN Small Signal Transistor 200mW

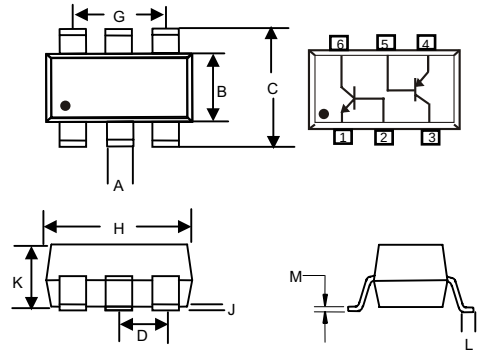
Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Low collector capacitance
- Low collector-emitter saturation voltage
- Epoxy meets UL 94 V-0 flammability rating
- Moisure Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

Mechanical Data

- Case: SOT-363, Molded Plastic
- MAKING: PJ

SOT-363



Maximum Ratings @ 25℃ Unless Otherwise Specified

Symbol	Parameter	Value	Units
OFF CHARACTERISTICS			
I_C	Collector Current	100	mAdc
I_{CM}	Peak Collector Current	200	mAdc
P_d	Power Dissipation @ T_s=50℃	200	mW
T_J, T_{STG}	Operating & Storage Temperature	-55~+150	℃

DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
A	.006	.014	0.15	0.35	
B	.045	.053	1.15	1.35	
C	.085	.096	2.15	2.45	
D	.026		0.65Nominal		
G	.047	.055	1.20	1.40	
H	.071	.087	1.80	2.20	
J	---	.004	---	0.10	
K	.035	.043	0.90	1.10	
L	.010	.018	0.26	0.46	
M	.003	.006	0.08	0.15	

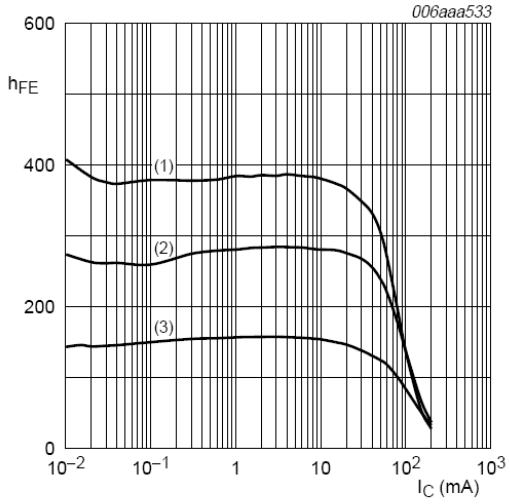
Electrical Characteristics Of TR1 NPN Transistor @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	Ic=10μA,I_E=0	80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	Ic=10mA,I_B=0	65			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=10μA,I_C=0	6			V
Collector cut-off current	I_{CBO}	V_{CB}=50V,I_E=0			15	nA
Emitter cut-off current	I_{EBO}	V_{EB}=6V,I_C=0			100	nA
DC current gain	h_{FE1}	V_{CE}=5V,I_C=2mA	200		450	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=10mA,I_B=0.5mA		0.05	0.1	V
	$V_{CE(sat)}$	I_C=100mA,I_B=5mA		0.2	0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=10mA,I_B=0.5mA		0.755	0.85	V
	$V_{BE(sat)}$	I_C=100mA,I_B=5mA		1.0		V
Base-emitter voltage	V_{BEon}	V_{CE}=5V,I_C=2mA	0.58	0.65	0.7	V
	V_{BEon}	V_{CE}=5V,I_C=10mA			0.77	V
Transition frequency	f_T	V_{CE}=5V,I_C=10mA,f=100MHz	100			MHz
collector capacitance	C_c	V_{CB}=10V,f=1.0MHz		1.9		pF
emitter capacitance	C_e	V_{CB}=0.5V,f=1.0MHz		11		pF

Electrical Characteristics Of TR2 PNP Transistor @ Ta=25℃ unless otherwise specified

Parameter	Symbol	Test conditions	MIN	TYP	MAX	UNIT
Collector-base breakdown voltage	$V_{(BR)CBO}$	I_C=-10μA I_E=0	-80			V
Collector-emitter breakdown voltage	$V_{(BR)CEO}$	I_C=-10mA I_B=0	-65			V
Emitter-base breakdown voltage	$V_{(BR)EBO}$	I_E=-10μA I_C=0	-6			V
Collector cut-off current	I_{CBO}	V_{CB}=-50V I_E=0			-15	nA
Emitter cut-off current	I_{EBO}	V_{EB}=-6V I_C=0			-100	nA
DC current gain	h_{FE}	V_{CE}=-5V I_C=-10μA V_{CE}=-5V I_C=-2mA	 200	280 290	 450	
Collector-emitter saturation voltage	$V_{CE(sat)}$	I_C=-10mA I_B=-0.5mA I_C=-100mA I_B=-5mA		-0.055 -0.2	-0.1 -0.3	V
Base-emitter saturation voltage	$V_{BE(sat)}$	I_C=-10mA I_C=-0.5mA I_C=-100mA I_C=-5mA		-0.755 -0.9	-0.85	V
Base-emitter on voltage	$V_{BE(on)}$	V_{CE}=-5V I_B=-2.0mA V_{CE}=-5V I_B=-10mA	-0.6	-0.65	-0.75 -0.82	V
Transition frequency	f_T	V_{CE}=-5V,I_C=-10mA ,f=100MHz	100			MHz
collector capacitance	C_c	V_{CB}=-10V,f=1.0MHz		2.3		pF
emitter capacitance	C_e	V_{CB}=-0.5V,f=1.0MHz		10		pF

TYPICAL CHARACTERISTICS @ Ta=25℃ unless otherwise specified



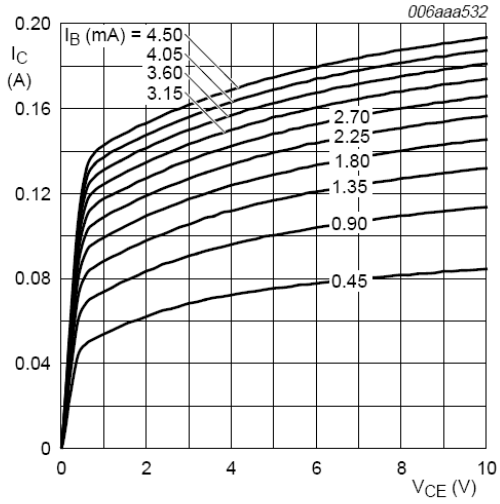
V_{CE} = 5 V

(1) T_{amb} = 100 °C

(2) T_{amb} = 25 °C

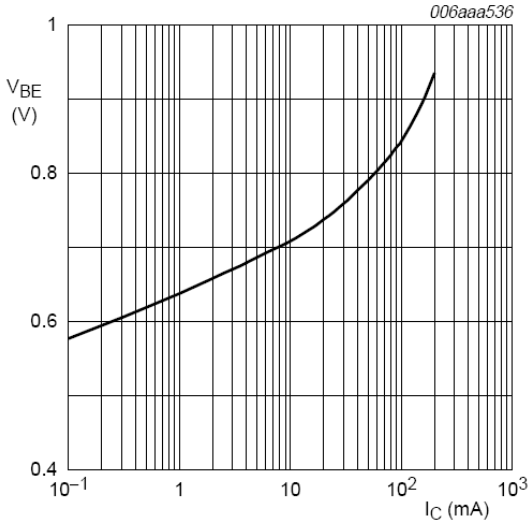
(3) T_{amb} = –55 °C

Fig1 . TR1（NPN）:DC current gain as a function of collector current; typical values



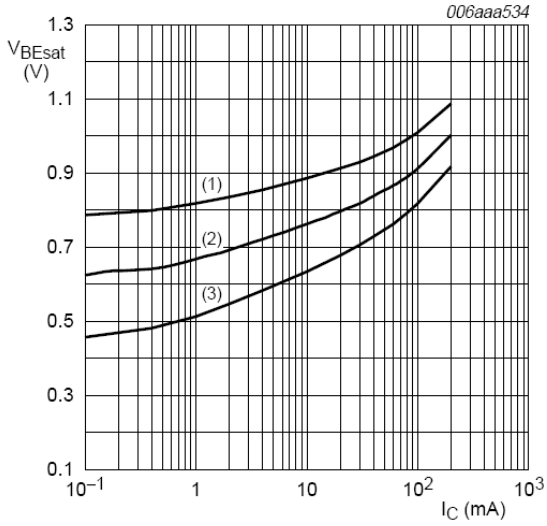
T_{amb} = 25 °C

Fig 2. TR1 (NPN): Collector current as a function of collector-emitter voltage; typical values



V_{CE} = 5 V; T_{amb} = 25 °C

Fig 3. TR1 (NPN): Base-emitter voltage as a function of collector current; typical values



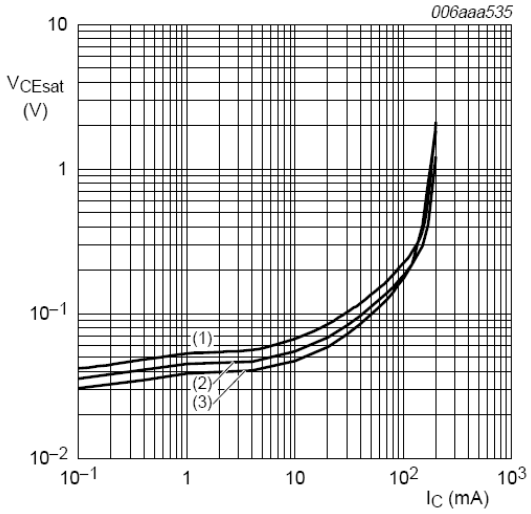
I_C/I_B = 20

(1) T_{amb} = –55 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = 100 °C

Fig 4. TR1 (NPN): Base-emitter saturation voltage as a function of collector current; typical values



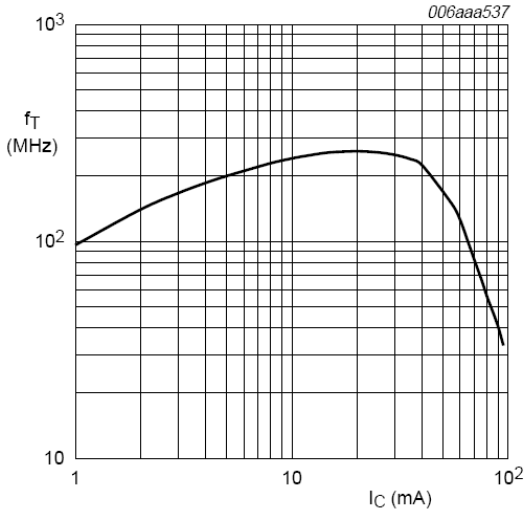
I_C/I_B = 20

(1) T_{amb} = 100 °C

(2) T_{amb} = 25 °C

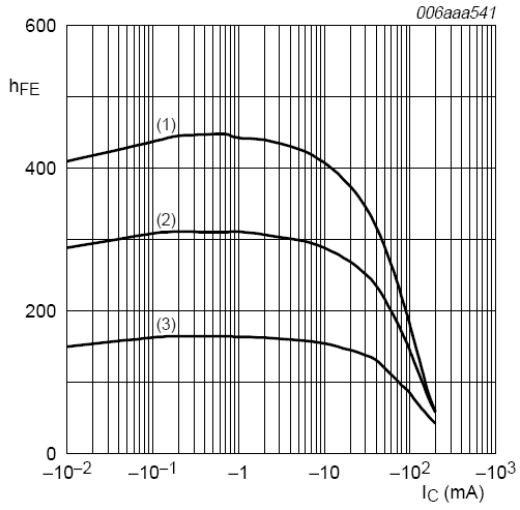
(3) T_{amb} = −55 °C

Fig 5. TR1 (NPN): Collector-emitter saturation voltage as a function of collector current; typical values



V_{CE} = 5 V; T_{amb} = 25 °C

Fig 6. TR1 (NPN): Transition frequency as a function of collector current; typical values



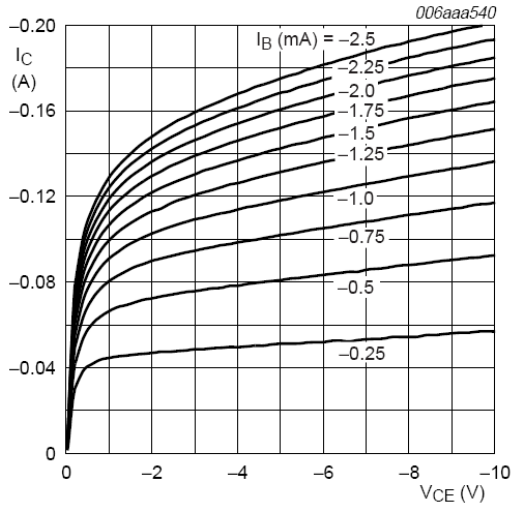
V_{CE} = −5 V

(1) T_{amb} = 100 °C

(2) T_{amb} = 25 °C

(3) T_{amb} = −55 °C

Fig 7. TR2 (PNP): DC current gain as a function of collector current; typical values



T_{amb} = 25 °C

Fig 8. TR2 (PNP): Collector current as a function of collector-emitter voltage; typical values

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Ordering Information :

Device	Packing
Part Number-TP	Tape&Reel;3Kpcs/Reel

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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