

RoHS
Compliant



Description

NPN general purpose transistors in Surface-Mounted Device (SMD) plastic packages

Features

- General-purpose transistors
- SMD plastic packages
- Two different gain selections
- High current gain
- Excellent hFE linearity
- Low noise between 30Hz and 15kHz
- For AF input stages and driver applications

Applications

General-purpose switching and amplification.

Max. Ratings & Characteristics : T_A = 25°C unless otherwise specified

Parameter	Symbol	Values	Unit
Collector - Base Voltage	V _{CB0}	80	V
Collector - Emitter Voltage	V _{CEO}	65	
Emitter - Base Voltage	V _{EBO}	6	
Collector Current - Continuous	I _C	0.1	A
Collector Dissipation	P _C	250	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	417	°C/W
Junction and Storage Temperature	T _J , T _{STG}	-55 to +150	°C

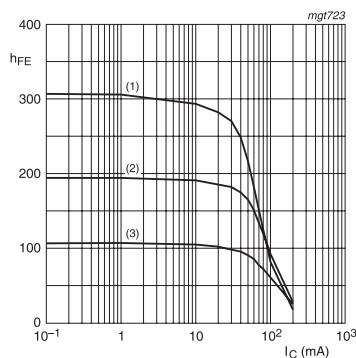
Max. Ratings & Characteristics : T_A = 25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector - Base Breakdown Voltage	V _{(BR)CB0}	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 Base Cut-off Current	I _{CB0}	V _{CB} = 30V, I _E = 0 V _{CB} = 30V, I _E = 0, T _J =150°C	-	-	15 5	nA μA
Emitter Base Cut-off Current	I _{EBO}	V _{EB} = -5V, I _C = 0	-	-	100	μA
DC Current Gain BC846A BC846B	h _{FE}	V _{CE} = 5V, I _C = -2mA	-	90 150	-	-
DC Current Gain BC846 BC846A BC846B	h _{FE}	V _{CE} = 5V, I _C = 10μA	110 110 200	-	450 220 450	-

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector - Emitter Saturation Voltage	$V_{CE(SAT)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 10\text{mA}, I_B = 5\text{mA}$	-	0.09 0.2	0.25 0.6	V
Base - Emitter Saturation Voltage	$V_{BE(SAT)}$	$I_C = 10\text{mA}, I_B = 0.5\text{mA}$ $I_C = 100\text{mA}, I_B = 5\text{mA}$	-	0.7 0.9	-	
Base Emitter Voltage	$V_{BE(ON)}$	$I_C = 2\text{mA}, V_{CE} = 5\text{V}$ $I_C = 10\text{mA}, V_{CE} = 5\text{V}$	0.58 -	0.66 -	0.7 0.77	
Collector Capacitance	C_C	$V_{CB} = 10\text{V}, I_E = I_C = 0$ $f = 1\text{MHz}$	-	2.5	-	pF
Transition Frequency	f_T	$V_{CE} = -5\text{V}, I_C = 10\text{mA},$ $f = 100\text{MHz}$	100	-	-	MHz

Typical Characteristics : $T_A = 25^\circ\text{C}$ unless otherwise specified

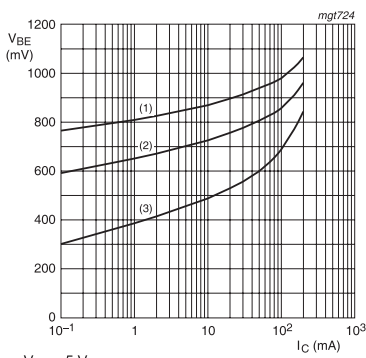
Ratings & Characteristic Curves



$V_{CE} = 5\text{V}$

- (1) $T_{amb} = 150^\circ\text{C}$
- (2) $T_{amb} = 25^\circ\text{C}$
- (3) $T_{amb} = -55^\circ\text{C}$

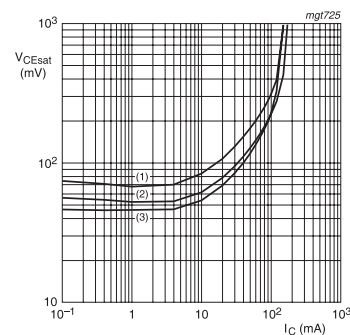
Selection A : DC current gain as a function of collector current; typical values



$V_{CE} = 5\text{V}$

- (1) $T_{amb} = -55^\circ\text{C}$
- (2) $T_{amb} = 25^\circ\text{C}$
- (3) $T_{amb} = 150^\circ\text{C}$

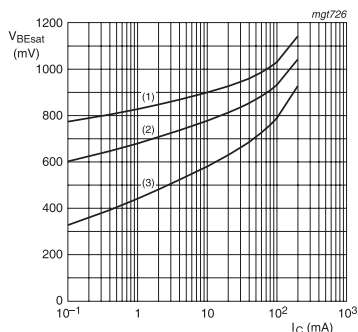
Selection A : Base-emitter voltage as a function of collector current; typical values



$I_C/I_B = 20$

- (1) $T_{amb} = 150^\circ\text{C}$
- (2) $T_{amb} = 25^\circ\text{C}$
- (3) $T_{amb} = -55^\circ\text{C}$

Selection A : Collector-emitter saturation voltage as a function of collector current; typical values



$I_C/I_B = 10$

- (1) $T_{amb} = -55^\circ\text{C}$
- (2) $T_{amb} = 25^\circ\text{C}$
- (3) $T_{amb} = 150^\circ\text{C}$

Selection A : Base-emitter saturation voltage as a function of collector current; typical values

