BC856 ... BC860

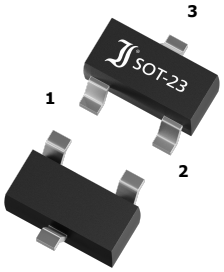
SMD General Purpose PNP Transistors
SMD Universal-PNP-Transistoren

I_C = -100 mA
h_{FE} ~ 180/290/520
T_{jmax} = 150°C

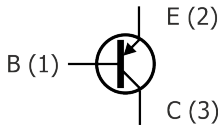
V_{CEO} = -30...-65 V
P_{tot} = 250 mW

Version 2021-12-17

SOT-23
TO-236



SPICE Model & **STEP** File [1])



Marking
See below / Siehe unten

HS Code 85412100

Typical Applications
Signal processing
Switching
Amplification
Commercial /industrial grade
Suffix -Q: AEC-Q101 compliant [1])
Suffix -AQ: in AEC-Q101 qualification [1])

Typische Anwendungen
Signalverarbeitung
Schalten
Verstärken
Standardausführung
Suffix -Q: AEC-Q101 konform [1])
Suffix -AQ: in AEC-Q101 Qualifikation [1])

Features
General Purpose
Three current gain groups
Compliant to RoHS (w/o exemp.), REACH, Conflict Minerals [1])

Besonderheiten
Universell anwendbar
Drei Stromverstärkungsklassen
Konform zu RoHS (ohne Ausn.) , REACH, Konfliktmineralien [1])

Mechanical Data [1])		**Mechanische Daten [1])**
Taped and reeled	3000 / 7"	Gegurtet auf Rolle
Weight approx.	0.01 g	Gewicht ca.
Case material	UL 94V-0	Gehäusematerial
Solder & assembly conditions	260°C/10s MSL = 1	Löt- und Einbaubedingungen

Type Code						**Recomm. complementary NPN transistors Empf. komplementäre NPN-Transistoren**
BC856A/-Q	3A	BC857A/-AQ	3E	BC858A/-AQ	3E	BC846 ... BC850
BC856B/-AQ	3B	BC857B/-Q/-AQ	3F	BC858B/-AQ	3F	
BC856C/-AQ	3C	BC857C/-AQ	3G	BC858C/-AQ	3G	
		BC860B	3F	BC859A/-AQ	3E	
		BC860C	3G/4G	BC859B/-AQ	3F	
				BC859C/-AQ	3G/4G	

Maximum ratings [2]) **Grenzwerte [2])**

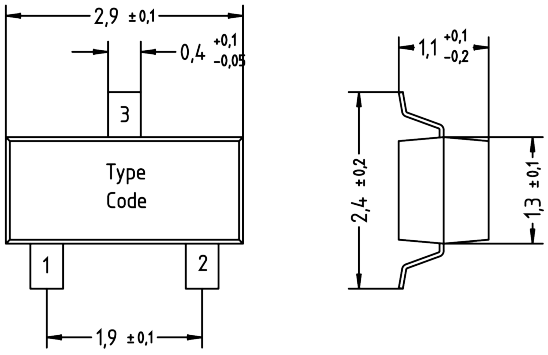
			BC856	**BC857 BC860**	**BC858 BC859**
Collector-Emitter-voltage – Kollektor-Emitter-Spannung	B open	$-V_{CEO}$	65 V	45 V	30 V
Collector-Base-voltage – Kollektor-Basis-Spannung	E open	$-V_{CBO}$	80 V	50 V	30 V
Emitter-Base-voltage – Emitter-Basis-Spannung	C open	$-V_{EBO}$	5 V		
Power dissipation – Verlustleistung		P_{tot}	250 mW [3])		
Collector current – Kollektorstrom	DC	$-I_C$	100 mA		
Peak Collector current – Kollektor-Spitzenstrom		$-I_{CM}$	200 mA		
Junction temperature – Sperrschichttemperatur Storage temperature – Lagerungstemperatur		T_j T_S	-55...+150°C -55...+150°C		

1 Please note the detailed information on our website or at the beginning of the data book
Bitte beachten Sie die detaillierten Hinweise auf unserer Internetseite bzw. am Anfang des Datenbuches
2 T_A = 25°C unless otherwise specified – T_A = 25°C wenn nicht anders angegeben
3 Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Lötpad) an jedem Anschluss

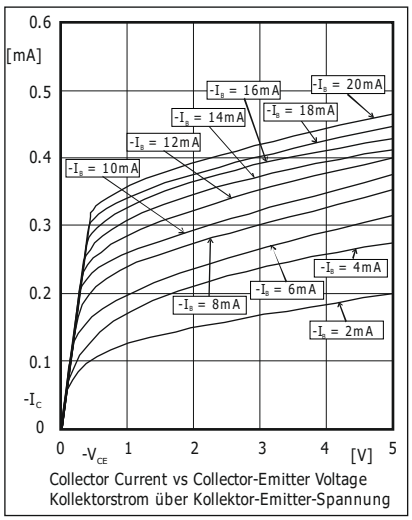
Characteristics **Kennwerte**

			T_j = 25°C	Min.	Typ.	Max.
DC current gain – Kollektor-Basis-Stromverhältnis						
- V_{CE} = 5 V	- I_C = 10 µA	Group A	h_{FE}	–	90	–
		Group B		–	150	–
		Group C		–	270	–
	- I_C = 2 mA	Group A	h_{FE}	125	180	250
		Group B		220	290	475
		Group C		420	520	800
Collector-Emitter saturation voltage – Kollektor-Sättigungsspannung [1])						
- I_C = 10 mA	- I_B = 0.5 mA		- V_{CEsat}	–	–	300 mV
- I_C = 100 mA	- I_B = 5 mA			–	–	650 mV
Base-Emitter saturation voltage – Basis-Sättigungsspannung [2])						
- I_C = 10 mA	- I_B = 0.5 mA		- V_{BEsat}	–	700 mV	–
- I_C = 100 mA	- I_B = 5 mA			–	900 mV	–
Base-Emitter-voltage – Basis-Emitter-Spannung [2])						
- V_{CE} = 5 V	- I_C = - 2 mA		- V_{BE}	600 mV	–	750 mV
- V_{CE} = 5 V	- I_C = - 10 mA			–	–	820 mV
Collector-Base cutoff current – Kollektor-Basis-Reststrom						
- V_{CE} = 30 V		E open	- I_{CBO}	–	–	15 nA
- V_{CE} = 30 V	T_j = 125°C			–	–	4 µA
Emitter-Base cutoff current						
- V_{EB} = 5 V		C open	- I_{EBO}	–	–	100 nA
Gain-Bandwidth Product – Transitfrequenz						
- V_{CE} = 5 V, - I_C = 10 mA, f = 100 MHz			f_T	100 MHz	–	–
Collector-Base Capacitance – Kollektor-Basis-Kapazität						
- V_{CB} = 10 V, I_E = i_e = 0, f = 1 MHz			C_{CBO}	–	4.5 pF	–
Emitter-Base Capacitance – Emitter-Basis-Kapazität						
- V_{EB} = 0.5 V, I_C = i_c = 0, f = 1 MHz			C_{EB0}	–	9 pF	–
Noise figure – Rauschzahl						
- V_{CE} = 5 V, - I_C = 200 µA		BC856 ... BC858	F	–	2 dB	10 dB
R_G = 2 kΩ, f = 1 kHz, Δf = 200 Hz		BC859 ... BC860		–	1.2 dB	4 dB
Typical thermal resistance junction to ambient Typischer Wärmewiderstand Sperrschicht – Umgebung			R_{thA}	420 K/W [2])		

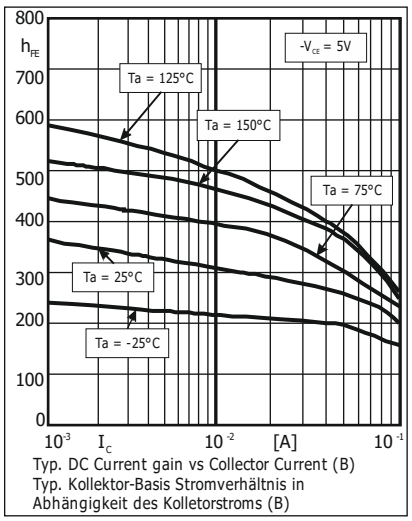
Dimensions - Maße [mm]



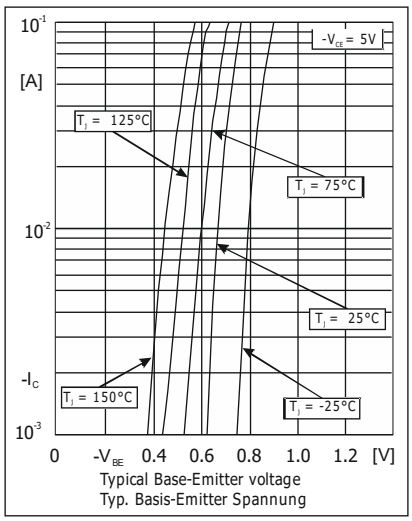
1 Tested with pulses t_p = 300 µs, duty cycle ≤ 2% – Gemessen mit Impulsen t_p = 300 µs, Schaltverhältnis ≤ 2%
2 Mounted on P.C. board with 3 mm² copper pad at each terminal
Montage auf Leiterplatte mit 3 mm² Kupferbelag (Lötpad) an jedem Anschluss



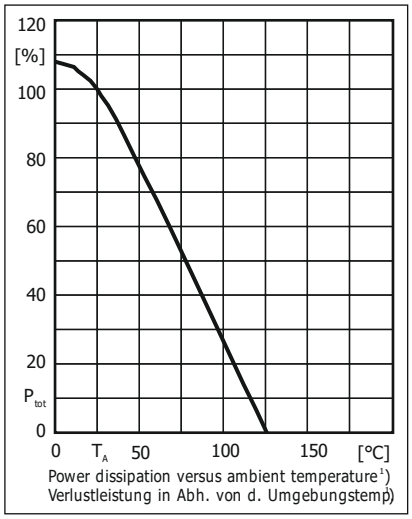
Collector Current vs Collector-Emitter Voltage
Kollektorstrom über Kollektor-Emitter-Spannung



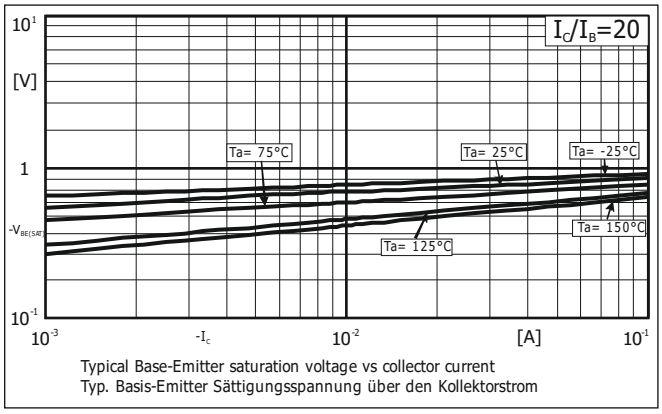
Typ. DC Current gain vs Collector Current (B)
Typ. Kollektor-Basis Stromverhältnis in Abhängigkeit des Kolletorstroms (B)



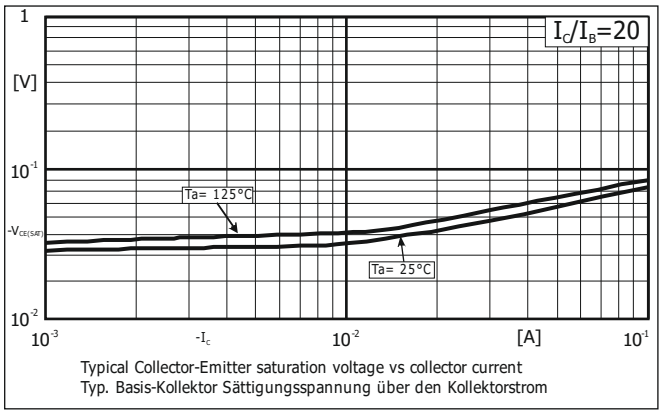
Typical Base-Emitter voltage
Typ. Basis-Emitter Spannung



Power dissipation versus ambient temperature[1])
Verlustleistung in Abh. von d. Umgebungstemp[1])



Typical Base-Emitter saturation voltage vs collector current
Typ. Basis-Emitter Sättigungsspannung über den Kollektorstrom



Typical Collector-Emitter saturation voltage vs collector current
Typ. Basis-Kollektor Sättigungsspannung über den Kollektorstrom

Disclaimer: See data book page 2 or website
Haftungssauschluss: Siehe Datenbuch Seite 2 oder Internet