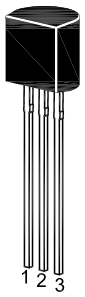
BC516

PNP Silicon Darlington Transistor



1. Collector 2. Base 3. Emitter
TO-92 Plastic Package

Absolute Maximum Ratings (T_a = 25℃)

Parameter	Symbol	Value	Unit
Collector Base Voltage	$-V_{CBO}$	40	V
Collector Emitter Voltage	$-V_{CEO}$	30	V
Emitter Base Voltage	$-V_{EBO}$	10	V
Collector Current (DC)	$-I_C$	500	mA
Peak Collector Current	$-I_{CM}$	800	mA
Total Power Dissipation	P_{tot}	500	mW
Junction Temperature	T_j	150	℃
Storage Temperature Range	T_{stg}	- 55 to + 150	℃

Thermal Characteristics

Parameter	Symbol	Max.	Unit
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	250	℃/W

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Characteristics at T_a = 25℃

Parameter	Symbol	Min.	Max.	Unit
DC Current Gain at $-V_{CE}$ = 2 V, $-I_C$ = 20 mA	h_{FE}	30000	-	-
Collector Base Cutoff Current at $-V_{CB}$ = 30 V	$-I_{CBO}$	-	100	nA
Emitter Base Cutoff Current at $-V_{EB}$ = 10 V	$-I_{EBO}$	-	100	nA
Collector Base Breakdown Voltage at $-I_C$ = 100 µA	$-V_{(BR)CBO}$	40	-	V
Collector Emitter Breakdown Voltage at $-I_C$ = 1 mA	$-V_{(BR)CEO}$	30	-	V
Emitter Base Breakdown Voltage at $-I_E$ = 10 µA	$-V_{(BR)EBO}$	10	-	V
Collector Emitter Saturation Voltage at $-I_C$ = 100 mA, $-I_B$ = 0.1 mA	$-V_{CE(sat)}$	-	1	V
Base Emitter Saturation Voltage at $-I_C$ = 100 mA, $-I_B$ = 0.1 mA	$-V_{BE(sat)}$	-	1.5	V
Base Emitter On Voltage at $-V_{CE}$ = 5 V, $-I_C$ = 10 mA	$-V_{BE(on)}$	-	1.4	V
Transition Frequency at $-V_{CE}$ = 5 V, $-I_C$ = 10 mA	f_T	125	-	MHz

Electrical Characteristics Curves

Fig. 1 Collector Current vs. Base to Emitter Voltage

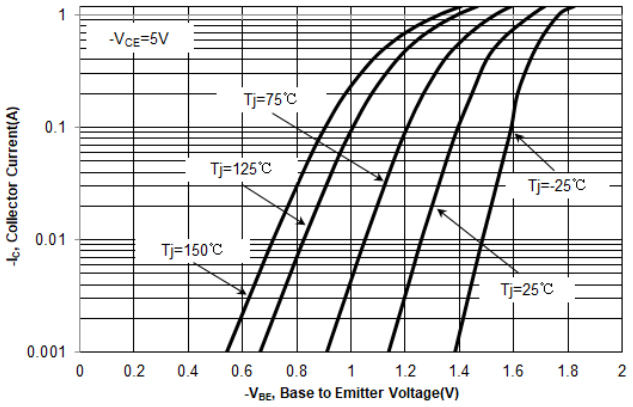


Fig. 2 h_{FE},DC Current Gain vs. Collector Current

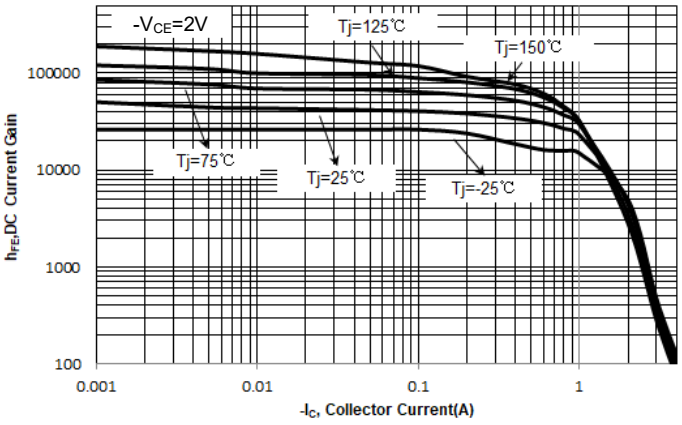


Fig. 3 $V_{BE(sat)}$ vs. Collector Current

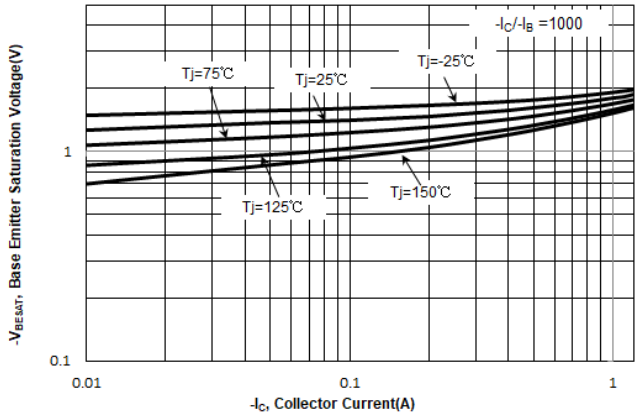


Fig. 4 $V_{CE(sat)}$ vs. Collector Current

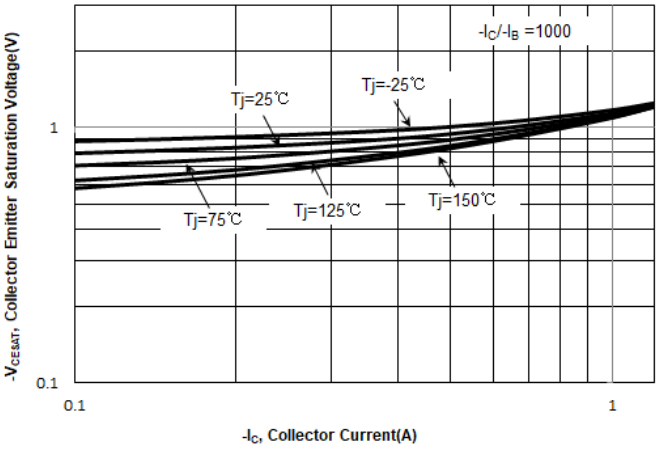


Fig. 5 Output Capacitance

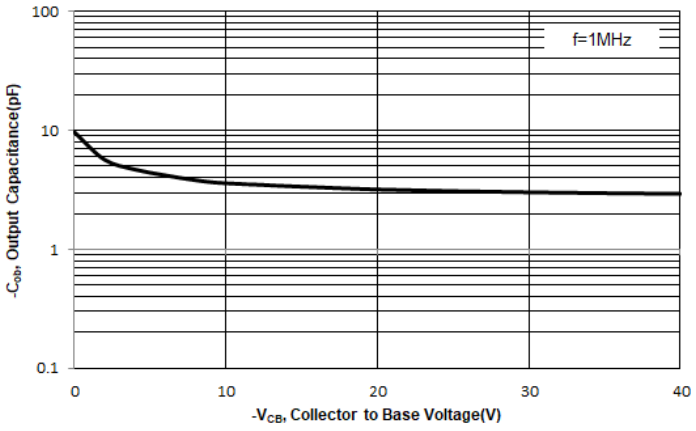
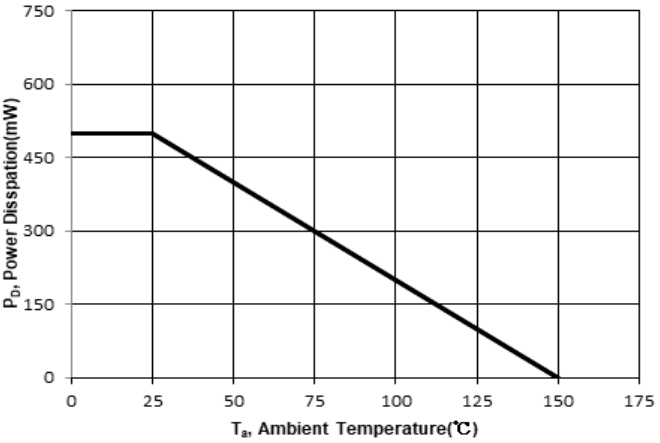


Fig 6. Power Derating Curve



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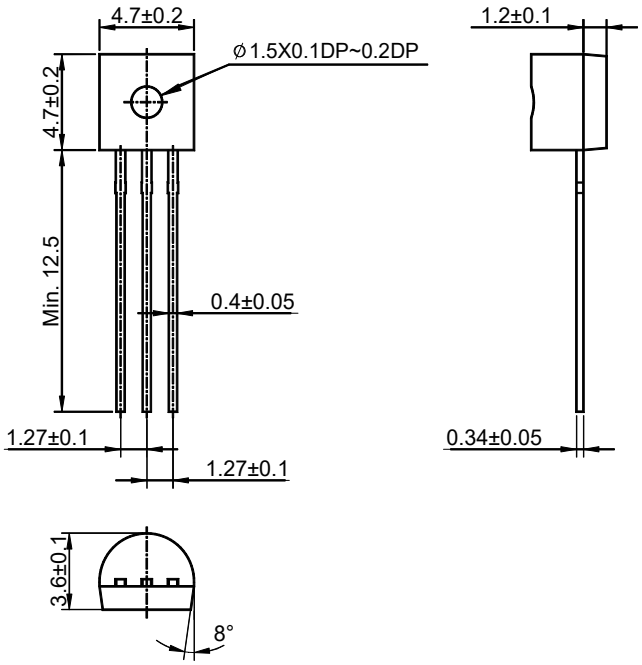
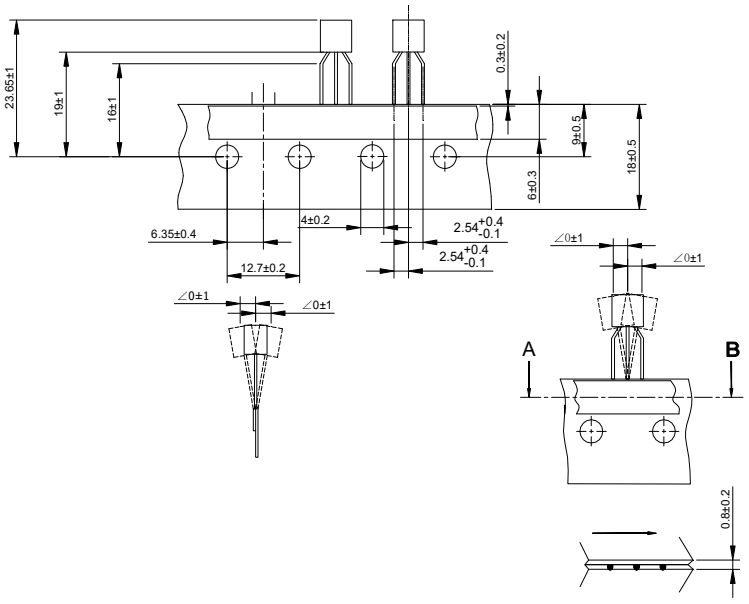
TO-92 Package Outline (Dimensions in millimeters)



TO-92 Ammo-Pack Outline (Dimensions in millimeters)



SECTION A–B

Packing information

Package	Bulk Packing			Ammo-Packing	
	Per Bag Qty	Per Box Qty	Per Carton Qty	Per Box Qty	Per Carton Qty
TO-92	1,000	5,000	50,000	4,000	20,000

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