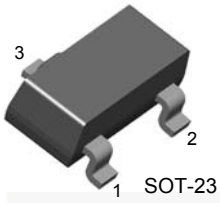
November 2014

BC817 / BC818
NPN Epitaxial Silicon Transistor

Features

- Switching and Amplifier Applications
- Suitable for AF-Driver Stages and Low Power Output Stages
- Complement to BC807 / BC808



SOT-23

1. Base 2. Emitter 3. Collector

Ordering Information(1)

Part Number	Marking	Package	Packing Method
BC81716MTF	8FA	SOT-23 3L	Tape and Reel
BC81725MTF	8FB	SOT-23 3L	Tape and Reel
BC81740MTF	8FC	SOT-23 3L	Tape and Reel
BC81816MTF	8GA	SOT-23 3L	Tape and Reel
BC81825MTF	8GB	SOT-23 3L	Tape and Reel
BC81840MTF	8GC	SOT-23 3L	Tape and Reel

Note:

1. Affix “-16,-25,-40” means h_{FE} classification. Affix “-M” means the matte type package. Affix “-TF” means the tape and reel type packing.

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter		Value	Unit
V_{CBO}	Collector-Base Voltage	BC817	50	V
		BC818	30	
V_{CEO}	Collector-Emitter Voltage	BC817	45	V
		BC818	25	
V_{EBO}	Emitter-Base Voltage		5	V
I_C	Collector Current (DC)		800	mA
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		-65 to +150	°C

Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
P_D	Power Dissipation	310	mW
	Derate Above 25°C	2.48	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	403	°C/W

Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics[2]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter		Conditions	Min.	Typ.	Max.	Unit
BV_{CEO}	Collector-Emitter Breakdown Voltage	BC817	I_C = 10 mA, I_B = 0	45			V
		BC818		25			
BV_{CES}	Collector-Emitter Breakdown Voltage	BC817	I_C = 0.1 mA, V_{BE} = 0	50			V
		BC818		30			
BV_{EBO}	Emitter-Base Breakdown Voltage		I_E = 0.1 mA, I_C = 0	5			V
I_{CES}	Collector Cut-Off Current		V_{CE} = 25 V, V_{BE} = 0			100	nA
I_{EBO}	Emitter Cut-Off Current		V_{EB} = 4 V, I_C = 0			100	nA
h_{FE1}	DC Current Gain		V_{CE} = 1 V, I_C = 100 mA	100		630	
h_{FE2}			V_{CE} = 1 V, I_C = 300 mA	60			
V_{CE}(sat)	Collector-Emitter Saturation Voltage		I_C = 500 mA, I_B = 50 mA			0.7	V
V_{BE}(on)	Base-Emitter On Voltage		V_{CE} = 1 V, I_C = 300 mA			1.2	V
f_T	Current Gain Bandwidth Product		V_{CE} = 5 V, I_C = 10 mA, f = 50 MHz		100		MHz
C_{ob}	Output Capacitance		V_{CB} = 10 V, f = 1 MHz			12	pF

Note:

2. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2%

h_{FE} Classification

Classification	16	25	40
h_{FE1}	100 ~ 250	160 ~ 400	250 ~ 630
h_{FE2}	60 ~	100 ~	170 ~

Typical Performance Characteristics

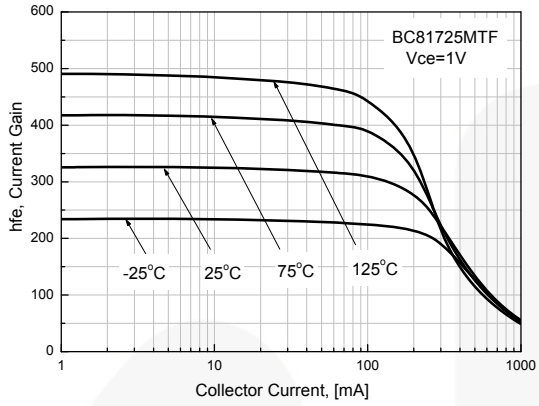


Figure 1. DC Current Gain

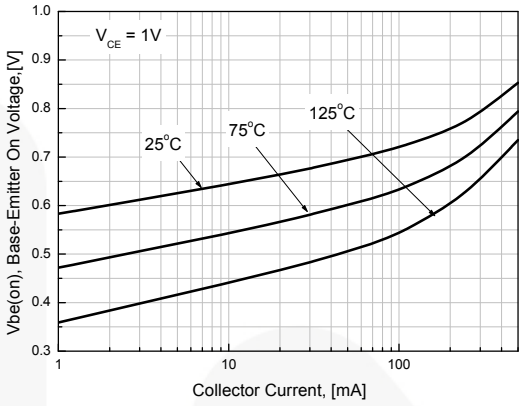


Figure 2. Base-Emitter On Voltage

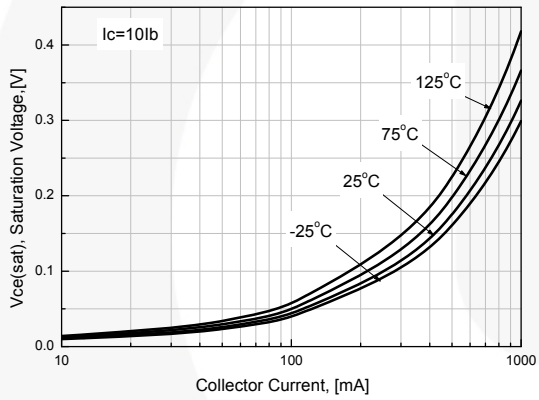


Figure 3. Collector-Emitter Saturation Voltage

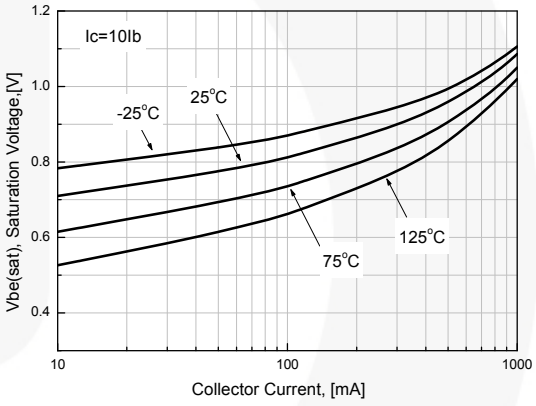


Figure 4. Base-Emitter Saturation Voltage

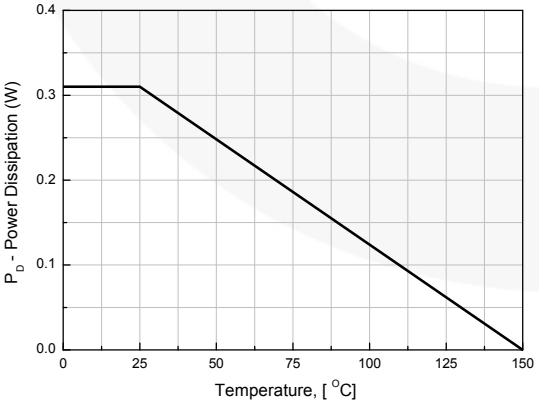


Figure 5. Power Dissipation vs Ambient Temperature

Physical Dimensions

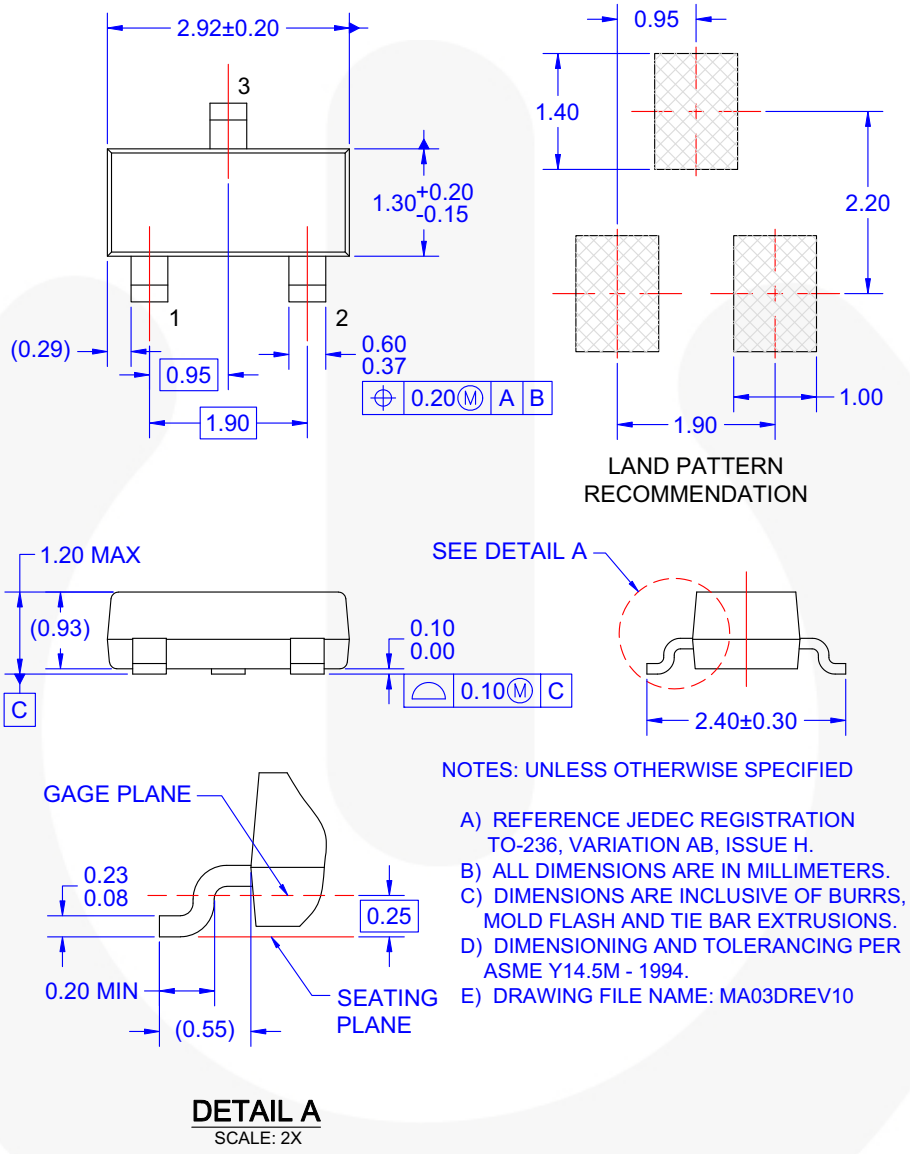


Figure 6. 3-LEAD, SOT23, JEDEC TO-236, LOW PROFILE

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