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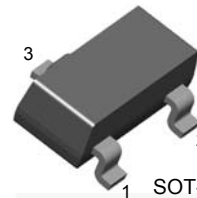


November 2014

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 $T_A = 25^\circ\text{C}$ 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	$^\circ\text{C}$
T_{STG}	Storage Temperature		-65 to +150	$^\circ\text{C}$

Thermal Characteristics⁽¹⁾

Values are at $T_A = 25^\circ\text{C}$ unless otherwise noted.

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

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 $T_A = 25^\circ\text{C}$ unless otherwise noted.

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

Note:

2. Pulse test: pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$

 h_{FE} Classification

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

Typical Performance Characteristics

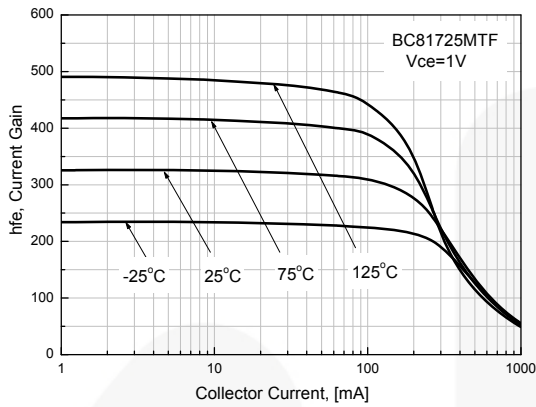


Figure 1. DC Current Gain

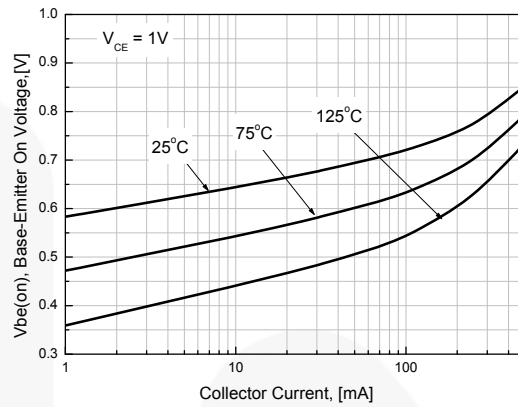


Figure 2. Base-Emitter On Voltage

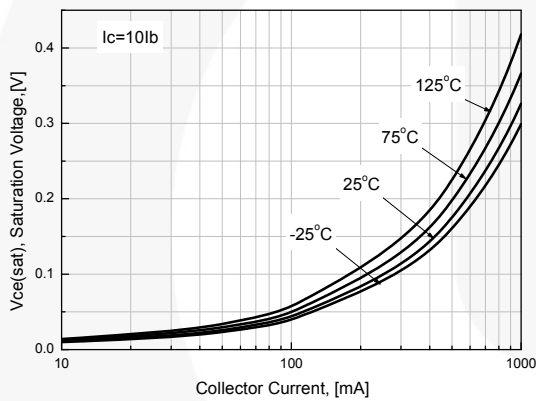


Figure 3. Collector-Emitter Saturation Voltage

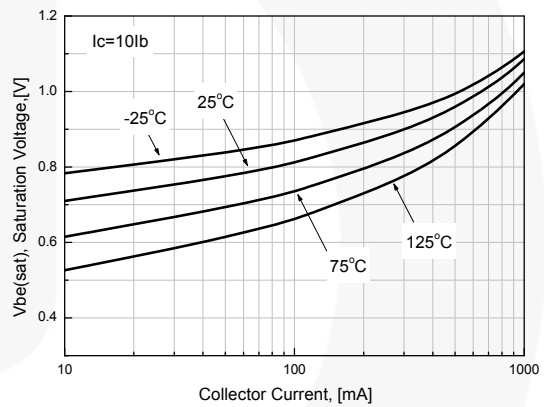


Figure 4. Base-Emitter Saturation Voltage

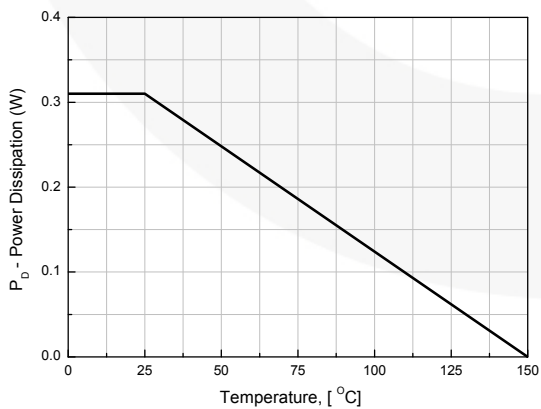
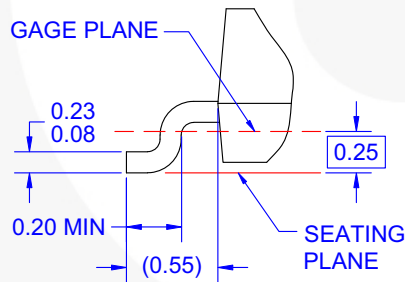
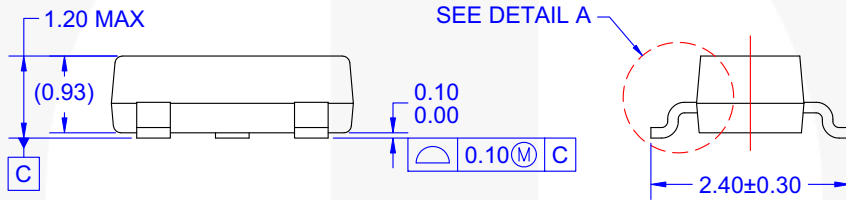
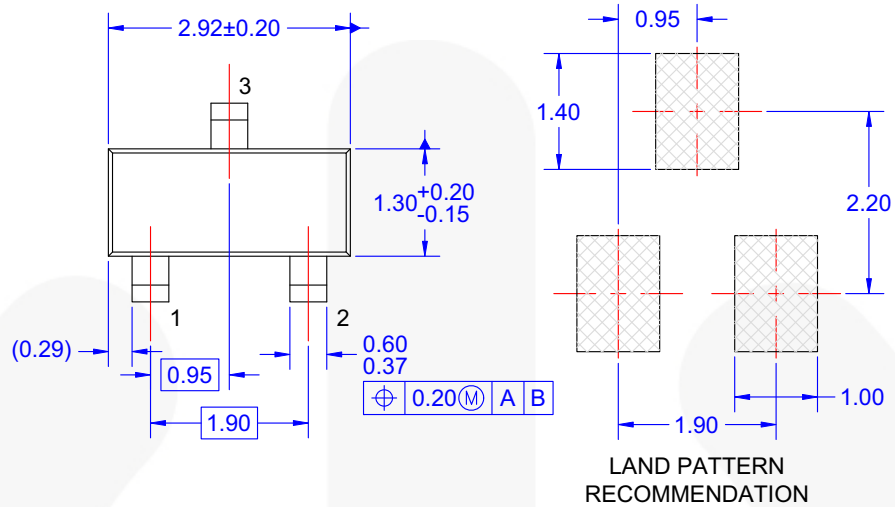


Figure 5. Power Dissipation vs Ambient Temperature

Physical Dimensions



NOTES: UNLESS OTHERWISE SPECIFIED

- A) REFERENCE JEDEC REGISTRATION TO-236, VARIATION AB, ISSUE H.
- B) ALL DIMENSIONS ARE IN MILLIMETERS.
- C) DIMENSIONS ARE INCLUSIVE OF BURRS, MOLD FLASH AND TIE BAR EXTRUSIONS.
- D) DIMENSIONING AND TOLERANCING PER ASME Y14.5M - 1994.
- E) DRAWING FILE NAME: MA03DREV10

DETAIL A
SCALE: 2X

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



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