

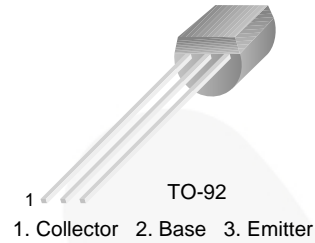


October 2014

# BC337 / BC338 NPN Epitaxial Silicon Transistor

## Features

- Switching and Amplifier Applications
- Suitable for AF-Driver Stages and Low-Power Output Stages
- Complement to BC327 / BC328



## Ordering Information

Part Number	Top Mark	Package	Packing Method
BC33716BU	BC33716	TO-92 3L	Bulk
BC33716TA	BC33716	TO-92 3L	Ammo
BC33716TFR	BC33716	TO-92 3L	Tape and Reel
BC33725BU	BC33725	TO-92 3L	Bulk
BC33725TA	BC33725	TO-92 3L	Ammo
BC33725TAR	BC33725	TO-92 3L	Ammo
BC33725TF	BC33725	TO-92 3L	Tape and Reel
BC33725TFR	BC33725	TO-92 3L	Tape and Reel
BC33740BU	BC33740	TO-92 3L	Bulk
BC33740TA	BC33740	TO-92 3L	Ammo
BC33825TA	BC33825	TO-92 3L	Ammo

## 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	
$V_{CES}$	Collector-Emitter Voltage	BC337	50	V
		BC338	30	
$V_{CEO}$	Collector-Emitter Voltage	BC337	45	V
		BC338	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	-55 to 150	$^\circ\text{C}$	

**Thermal Characteristics<sup>(1)</sup>**Values are at  $T_A = 25^\circ\text{C}$  unless otherwise noted.

Symbol	Parameter	Value	Unit
$P_D$	Power Dissipation	625	mW
	Derate Above $25^\circ\text{C}$	5.0	mW/ $^\circ\text{C}$
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	200	$^\circ\text{C}/\text{W}$

**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**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	BC337	$I_C = 10\text{ mA}, I_B = 0$	45		V	
		BC338		25			
$BV_{CES}$	Collector-Emitter Breakdown Voltage	BC337	$I_C = 0.1\text{ mA}, V_{BE} = 0$	50		V	
		BC338		30			
$BV_{EBO}$	Emitter-Base Breakdown Voltage	$I_E = 0.1\text{ mA}, I_C = 0$	5			V	
$I_{CES}$	Collector Cut-Off Current	BC337	$V_{CE} = 45\text{ V}, I_B = 0$		2	100	nA
		BC338	$V_{CE} = 25\text{ V}, I_B = 0$		2	100	
$h_{FE1}$	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	$V_{CB} = 10\text{ V}, I_E = 0, f = 1\text{ MHz}$		12		pF	

 **$h_{FE}$  Classification**

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



NOTES: UNLESS OTHERWISE SPECIFIED

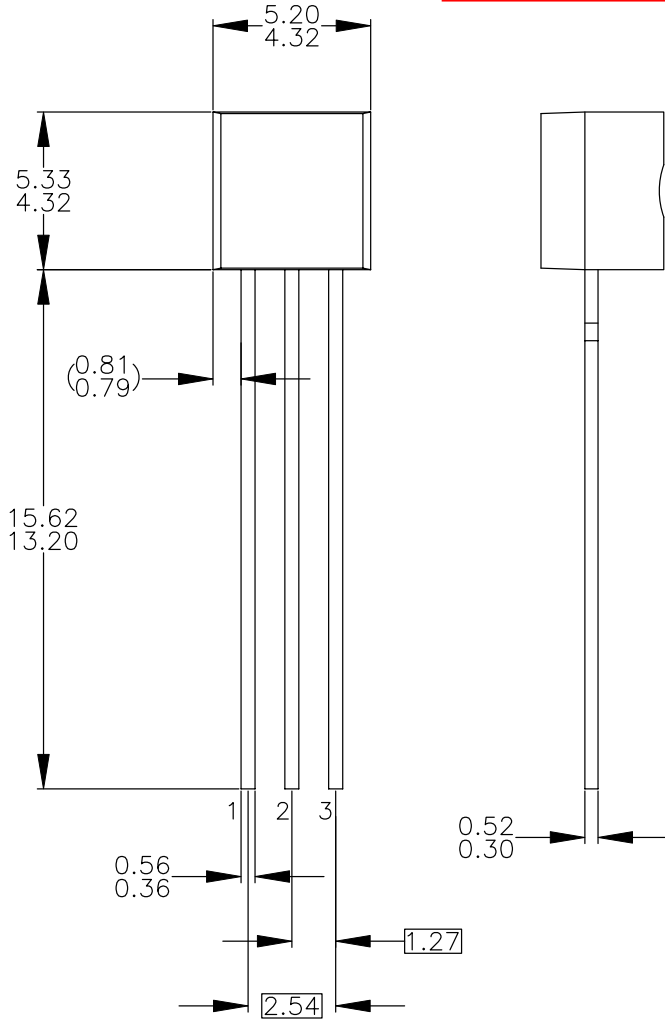
- A. DRAWING CONFORMS TO JEDEC MS-013, VARIATION AC.
- B. ALL DIMENSIONS ARE IN MILLIMETERS.
- C. DRAWING CONFORMS TO ASME Y14.5M-2009.
- D. DRAWING FILENAME: MKT-ZA03FREV3.
- E. FAIRCHILD SEMICONDUCTOR.

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REVISIONS

NO.	DESCRIPTION	DATE	NAME/SITE
A	RELEASE TO DOCUMENT CONTROL	MAR.4'96	RP
B	RDRW AS PER STD DWG TEMPLATE. CHG DIM REF FR DUAL DIM INCH(MM) TO SINGLE DIM MM. CHG LD PITCH DIM FR 1.14-1.40 TO 1.27 BSC. ADD DIM 2.54 BSC. CHG PKG WIDTH DIM FR 4.32- 4.70 TO 4.32-4.83; CHG PKG HEIGHT DIM FR 4.32-4.70 TO 4.32-4.78; CHG LD THICK DIM FR 0.30- 0.48 TO 0.30-0.52; DAMBAR-PKG DIM FR 1.27-1.65 TO 0.90-1.65; LD LGH DIM FR 14.47-15.64 TO 14.47-15.62; PKG DIM: 1.02-1.52 TO 0.92-1.52, 3.81-4.45 TO 3.40-4.80; NOTE 2: ADD DMOS "M" OPT'N AND LEGEND; NOTE B PKG 94 JFET OPT'N: CHG D TO S, CHG S TO D. ADD NOTE C. MOVE NOTE B INFO FR PKG 97&98 TO NEW NOTE D.	4OCT1999	RCM/MRG
3	CHG LD LEN FR <del>1.81</del> TO <del>1.88</del> ; CHG MOLD BODY HT FR <del>1.33</del> TO <del>1.33</del> ; CHG PKG EDGE TO LD EDGE DIST FR (0.81) TO (0.81); CHG MOLD BODY WIDTH FR <del>1.33</del> TO <del>1.33</del> ; ADD PKG THICKNESS DIM "E"; CHG "S" DIM FR <del>2.13</del> TO <del>2.13</del> ; REMOVE DAMBAR & EJECTOR PIN LOCATOR FEATURES & DIMENSIONS; REMOVE MOLDED SURFACE & DRAFT ANGLE DIMS; ADD NOTE ON JEDEC REFERENCE; ADD NOTE ON ASME Y14.5M-1994; REMOVE NOTE ON L34Z OPTION; ADD NOTE ON DWG FILENAME.	12FEB08	BMR/FSCP

**APPROVED**  
 July-14-2008



- NOTES: UNLESS OTHERWISE SPECIFIED
- A) DRAWING WITH REFERENCE TO JEDEC TO-92 RECOMMENDATIONS.
  - B) ALL DIMENSIONS ARE IN MILLIMETERS.
  - C) DRAWING CONFORMS TO ASME Y14.5M-1994.
  - D) TO-92 (92,94,96,97,98) PIN CONFIGURATION:

PIN	92			94			96			97			98		
	P	F	M	P	F	M	B	F	M	P	F	M	P	F	M
1	E	S	S	E	S	S	B	D	G	C	G	D	C	G	D
2	B	D	G	C	G	D	E	S	S	B	D	G	E	S	S
3	C	G	D	B	D	G	C	G	D	E	S	S	B	D	G

LEGEND:

P - BIPOLAR	E - EMITTER	D - DRAIN
F - JFET	B - BASE	S - SOURCE
M - DMOS	C - COLLECTOR	G - GATE






- E) FOR PACKAGE 92, 94, 96, 97 AND 98: PIN CONFIGURATION DRAIN "D" AND SOURCE "S" ARE INTERCHANGEABLE AT JFET "F" OPTION.
- F) DRAWING FILENAME: MKT-ZA03DREV3.

APPROVALS	DATE	<p><b>FAIRCHILD</b> SEMICONDUCTOR™</p> <p>3LD, TO-92, MOLDED STD STRAIGHT LD (NO EOL CODE)</p>				
DRAWN: J.U. COMPARATIVO JR.	03APR2008		SCALE	SIZE	DRAWING NUMBER	REV
CHECKED: L. GALERA			1:1	N/A	MKT-ZA03D	3
APPROVED: M.R. GESTOLE			FORMERLY: N/A			SHEET : 1 OF 1
G.S. BAJE						



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