New Jersey Semi-Conductor Products, Inc.

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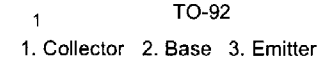
BC237/238/239

Switching and Amplifier Applications

- Low Noise: BC239

NPN Epitaxial Silicon Transistor



1. Collector 2. Base 3. Emitter

Absolute Maximum Ratings T_a=25°C unless otherwise noted

Symbol	Parameter		Value	Units
V_{CES}	Collector-Emitter Voltage	: BC237	50	V
		: BC238/239	30	V
V_{CEO}	Collector-Emitter Voltage	: BC237	45	V
		: BC238/239	25	V
V_{EBO}	Emitter-Base Voltage	: BC237	6	V
		: BC238/239	5	V
I_C	Collector Current (DC)		100	mA
P_C	Collector Dissipation		500	mW
T_J	Junction Temperature		150	°C
T_{STG}	Storage Temperature		-55 ~ 150	°C

Electrical Characteristics T_a=25°C unless otherwise noted

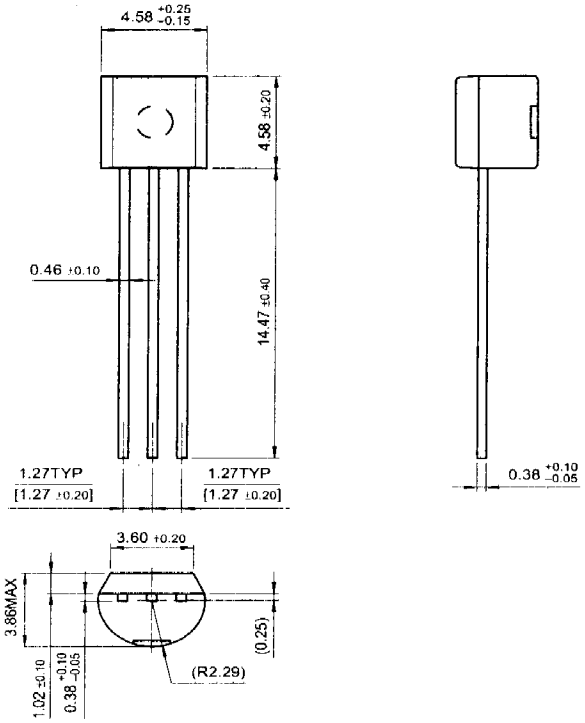
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
BV_{CEO}	Collector-Emitter Breakdown Voltage	I_C=2mA, I_B=0				
	: BC237		45			V
	: BC238/239		25			V
BV_{EBO}	Emitter Base Breakdown Voltage	I_E=1μA, I_C=0				
	: BC237		6			V
	: BC238/239		5			V
I_{CES}	Collector Cut-off Current					
	: BC237	V_{CE}=50V, V_{BE}=0		0.2	15	nA
	: BC238/239	V_{CE}=30V, V_{BE}=0		0.2	15	nA
h_{FE}	DC Current Gain	V_{CE}=5V, I_C=2mA	120		800	
V_{CE} (sat)	Collector-Emitter Saturation Voltage	I_C=10mA, I_B=0.5mA		0.07	0.2	V
		I_C=100mA, I_B=5mA		0.2	0.6	V
V_{BE} (sat)	Collector-Base Saturation Voltage	I_C=10mA, I_B=0.5mA		0.73	0.83	V
		I_C=100mA, I_B=5mA		0.87	1.05	V
V_{BE} (on)	Base-Emitter On Voltage	V_{CE}=5V, I_C=2mA	0.55	0.62	0.7	V
f_T	Current Gain Bandwidth Product	V_{CE}=3V, I_C=0.5mA, f=100MHz		85		MHz
		V_{CE}=5V, I_C=10mA, f=100MHz	150	250		MHz
C_{ob}	Output Capacitance	V_{CB}=10V, I_E=0, f=1MHz		3.5	6	pF
C_{ib}	Input Base Capacitance	V_{EB}=0.5V, I_C=0, f=1MHz		8		pF
NF	Noise Figure	V_{CE}=5V, I_C=0.2mA,				
	: BC237/238	f=1KHz R_G=2KΩ		2	10	dB
	: BC239	V_{CE}=5V, I_C=0.2mA			4	dB
	: BC239	R_G=2KΩ, f=30~15KHz			4	dB

h_{FE} Classification

Classification	A	B	C
h_{FE}	120 ~ 220	180 ~ 460	380 ~ 800

Quality Semi-Conductors

TO-92


4.58 +0.25 −0.15
4.58 ±0.20
0.46 ±0.10
14.47 ±0.40
1.27TYP
[1.27 ±0.20]
1.27TYP
[1.27 ±0.20]
0.38 +0.10 −0.05
3.60 ±0.20
3.86MAX
(0.25)
(R2.29)
1.02 ±0.10
0.38 +0.10 −0.05