Transistors
BC239

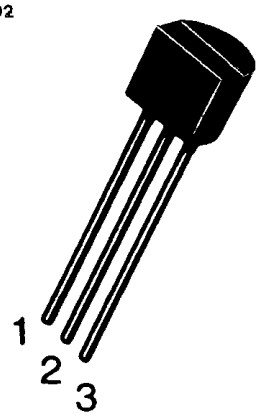
USHA (INDIA) LTD

SWITCHING AND AMPLIFIER APPLICATIONS
• LOW NOISE: BC239

ABSOLUTE MAXIMUM RATINGS (T_a=25°C)

Characteristic	Symbol	Rating	Unit
Collector-Emitter Voltage	V_{CES}	30	V
Collector-Emitter Voltage	V_{CEO}	25	V
Emitter-Base Voltage	V_{EBO}	5	V
Collector Current (DC)	I_C	100	mA
Collector Dissipation	P_C	500	mW
Junction Temperature	Tj	150	°C
Storage Temperature	Tstg	−55~150	°C

TO-92



1. Collector 2. Base 3. Emitter

ELECTRICAL CHARACTERISTICS (T_a=25°C)

Characteristic	Symbol	Test Condition	Min	Typ	Max	Unit
Collector Emitter Breakdown Voltage	BV_{CEO}	I_C=2mA, I_B=0	25			V
Emitter Base Breakdown Voltage	BV_{EBO}	I_E=1μA, I_C=0	5			V
Collector Cutoff Current	I_{CES}	V_{CE}=30V, I_B=0		0.2	15	nA
DC Current Gain	h_{FE}	V_{CE}=5V, I_C=2mA	120		800	
Collector Emitter Saturation Voltage	V_{CE}(sat)	I_C=10mA, I_B=0.5mA		0.07	0.2	V
		I_C=100mA, I_B=5mA		0.2	0.6	V
Collector Base Saturation Voltage	V_{BE}(sat)	I_C=10mA, I_B=0.5mA		0.73	0.83	V
		I_C=100mA, I_B=5mA		0.87	1.05	V
Base Emitter On Voltage	V_{BE}(on)	V_{CE}=5V, I_C=2mA	0.55	0.62	0.7	V
Current Gain Bandwidth Product	f_T	V_{CE}=3V, I_C=0.5mA,		85		MHz
		V_{CE}=5V, I_C=10mA,	150	250		MHz
Collector Base Capacitance	C_{CBO}	V_{CB}=10V, f=1MHz		3.5	6	pF
Emitter Base Capacitance	C_{EBO}	V_{EB}=0.5V, f=1MHz		8		pF
Noise Figure	NF	V_{CE}=5V, I_C=0.2mA, f=1KHz R_g=2kohm			4	dB
	NF	V_{CE}=5V, I_C=0.2mA R_g=2kohm, f=30~15KHz			4	dB

h_{FE} CLASSIFICATION

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

ISO 14001 CERTIFIED
AN ISO 9002 COMPANY