

6367254 MOTOROLA SC (XSTRS/R F)

96D 81957 D

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V _{CEO}	45	Vdc
Collector-Base Voltage	V _{CBO}	45	Vdc
Emitter-Base Voltage	V _{EBO}	5.0	Vdc
Collector Current — Continuous	I _C	200	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board,* T _A = 25°C Derate above 25°C	P _D	225	mW
Thermal Resistance Junction to Ambient	R _{θJA}	1.8	mW/°C
Total Device Dissipation Alumina Substrate,** T _A = 25°C Derate above 25°C	P _D	300	mW
Thermal Resistance Junction to Ambient	R _{θJA}	2.4	mW/°C
Junction and Storage Temperature	T _J , T _{stg}	150	°C

*FR-5 = 1.0 x 0.75 x 0.62 in.

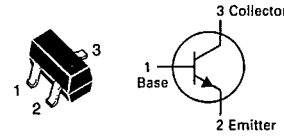
**Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

DEVICE MARKING

BCX70G = AG; BCX70H = AH; BCX70J = AJ; BCX70K = AK

T-27-09
BCX70G,H,J,K

CASE 318-02/03, STYLE 6
SOT-23 (TO-236AA/AB)



GENERAL PURPOSE TRANSISTOR

NPN SILICON

Refer to MPS3904 for graphs.

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage (I _C = 2.0 mAdc, I _E = 0)	V _{(BR)CEO}	45	—	Vdc
Emitter-Base Breakdown Voltage (I _E = 1.0 μAdc, I _C = 0)	V _{(BR)EBO}	5.0	—	Vdc
Collector Cutoff Current (V _{CE} = 32 Vdc) (V _{CE} = 32 Vdc, T _A = 150°C)	I _{CES}	—	20	nAdc μAdc
Emitter Cutoff Current (V _{EB} = 4.0 Vdc, I _C = 0)	I _{EBO}	—	20	nAdc
ON CHARACTERISTICS				
DC Current Gain (I _C = 10 μAdc, V _{CE} = 5.0 Vdc)	h _{FE}	—	—	—
		20	—	
		40	—	
		100	—	
(I _C = 2.0 mAdc, V _{CE} = 5.0 Vdc)		120	220	
		180	310	
		250	460	
		380	630	
(I _C = 50 mAdc, V _{CE} = 1.0 Vdc)		60	—	
		70	—	
		90	—	
		100	—	
Collector-Emitter Saturation Voltage (I _C = 50 mAdc, I _B = 1.25 mAdc) (I _C = 10 mAdc, I _B = 0.25 mAdc)	V _{CE(sat)}	—	0.55 0.35	Vdc
Base-Emitter Saturation Voltage (I _C = 50 mAdc, I _B = 1.25 mAdc) (I _C = 50 mAdc, I _B = 0.25 mAdc)	V _{BE(sat)}	0.7 0.6	1.05 0.85	Vdc
Base-Emitter On Voltage (I _C = 2.0 mAdc, V _{CE} = 5.0 Vdc)	V _{BE(on)}	0.55	0.75	Vdc

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ELECTRICAL CHARACTERISTICS (continued) ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product ($I_C = 10 \text{ mA dc}$, $V_{CE} = 5.0 \text{ V dc}$, $f = 100 \text{ MHz}$)	f_T	125	—	MHz
Output Capacitance ($V_{CE} = 10 \text{ V dc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$)	C_{obo}	—	4.5	pF
Small-Signal Current Gain ($I_C = 2.0 \text{ mA dc}$, $V_{CE} = 5.0 \text{ V dc}$, $f = 1.0 \text{ kHz}$)	h_{fe}	125 175 250 350	250 350 500 700	—
Noise Figure ($I_C = 0.2 \text{ mA dc}$, $V_{CE} = 5.0 \text{ V dc}$, $R_S = 2.0 \text{ k}\Omega$, $f = 1.0 \text{ kHz}$, $BW = 200 \text{ Hz}$)	NF	—	6.0	dB
SWITCHING CHARACTERISTICS				
Turn-On Time ($I_C = 10 \text{ mA dc}$, $I_{B1} = 1.0 \text{ mA dc}$)	t_{on}	—	150	ns
Turn-Off Time ($I_{B2} = 1.0 \text{ mA dc}$, $V_{BB} = 3.6 \text{ V dc}$, $R_1 = R_2 = 5.0 \text{ k}\Omega$, $R_L = 990 \Omega$)	t_{off}	—	800	ns