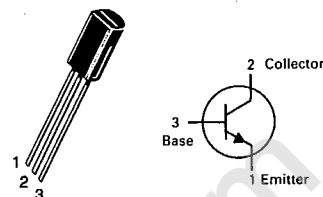


6367254 MOTOROLA SC (XSTRS/R F)

96D 81734 D

T-29-23

**BDC05**  
**BDC07**CASE 29-03, STYLE 14  
TO-92 (TO-226AE)**HIGH VOLTAGE TRANSISTORS**

NPN SILICON

Refer to MPSW42 for graphs.

**MAXIMUM RATINGS**

Rating	Symbol	BDC 05	BDC 07	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	300	250	V <sub>dc</sub>
Collector-Base Voltage	V <sub>CBO</sub>	300	250	V <sub>dc</sub>
Emitter-Base Voltage	V <sub>EBO</sub>	5.0		V <sub>dc</sub>
Collector Current - Continuous	I <sub>C</sub>	500		mAdc
Total Device Dissipation @ T <sub>A</sub> = 25°C Derate above 25°C	P <sub>D</sub>	1 8.0		Watt mW/°C
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	P <sub>D</sub>	2.5 50		Watt mW/°C
Operating and Storage Junction Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to +150		°C

**THERMAL CHARACTERISTICS**

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	50	°C/W
Thermal Resistance, Junction to Ambient	R <sub>θJC</sub>	125	°C/W

**ELECTRICAL CHARACTERISTICS** (T<sub>A</sub> = 25°C unless otherwise noted)

Characteristic	Symbol	Min.	Max.	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage (1) (I <sub>C</sub> = 1 mAdc, I <sub>B</sub> = 0)	V <sub>(BR)CEO</sub>	300 250	—	V <sub>dc</sub>
Collector-Base Breakdown Voltage (I <sub>C</sub> = 100 μAdc, I <sub>E</sub> = 0)	V <sub>(BR)CBO</sub>	300 250	—	V <sub>dc</sub>
Emitter-Base Breakdown Voltage (I <sub>E</sub> = 100 μAdc, I <sub>C</sub> = 0)	V <sub>(BR)EBO</sub>	5.0 5.0	—	V <sub>dc</sub>
Collector Cutoff Current (V <sub>CB</sub> = 200 Vdc, I <sub>E</sub> = 0)	I <sub>CBO</sub>	—	0.01	μAdc
Emitter Cutoff Current (V <sub>BE</sub> = 5.0 Vdc, I <sub>C</sub> = 0)	I <sub>EBO</sub>	—	10	μAdc
<b>ON CHARACTERISTICS</b>				
DC Current Gain (I <sub>C</sub> = 25 mAdc, V <sub>CE</sub> = 20 Vdc)	h <sub>FE</sub>	40 50	—	—
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 20 mAdc, I <sub>B</sub> = 2.0 mAdc)	V <sub>CE(sat)</sub>		2	V <sub>dc</sub>
Base-Emitter Saturation Voltage (I <sub>C</sub> = 20 mA, I <sub>B</sub> = 2.0 mA)	V <sub>BE(sat)</sub>		2.0	V <sub>dc</sub>
<b>DYNAMIC CHARACTERISTICS</b>				
Current Gain-Bandwidth Product (I <sub>C</sub> = 10 mAdc, V <sub>CE</sub> = 10 Vdc, f = 50 MHz)	f <sub>T</sub>	60	—	MHz
Collector-Base Capacitance (V <sub>CB</sub> = 30 Vdc, I <sub>E</sub> = 0, f = 1.0 MHz)	C <sub>re</sub>		2.8	pF

(1) Pulse Test: Pulse Width ≤ 300 μs, Duty Cycle ≤ 2.0%.

MOTOROLA SMALL-SIGNAL SEMICONDUCTORS