

**MPSW92**  
**MPSW93**

**CASE 29-03, STYLE 1**  
**TO-92 (TO-226AE)**

**HIGH VOLTAGE**  
**TRANSISTOR**

**PNP SILICON**

**MAXIMUM RATINGS**

Rating	Symbol	MPSW92	MPSW93	Unit
Collector-Emitter Voltage	V <sub>CEO</sub>	300	200	V <sub>dc</sub>
Collector-Base Voltage	V <sub>CBO</sub>	300	200	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>	1.0	8.0	Watt mW/°C
Total Device Dissipation @ T <sub>C</sub> = 25°C Derate above 25°C	P <sub>D</sub>	2.5	20	Watts 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>θJA</sub>	125	°C/W

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

Characteristic	Symbol	Min	Max	Unit
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**OFF CHARACTERISTICS**

Collector-Emitter Breakdown Voltage(1) (I <sub>C</sub> = 1.0 mAdc, I <sub>B</sub> = 0)	MPSW92 MPSW93	V <sub>(BR)CEO</sub>	300 200	— —	V <sub>dc</sub>
Collector-Base Breakdown Voltage (I <sub>C</sub> = 100 μAdc, I <sub>E</sub> = 0)	MPSW92 MPSW93	V <sub>(BR)CBO</sub>	300 200	— —	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	—	V <sub>dc</sub>
Collector Cutoff Current (V <sub>CB</sub> = 200 Vdc, I <sub>E</sub> = 0) (V <sub>CB</sub> = 160 Vdc, I <sub>E</sub> = 0)	MPSW92 MPSW93	I <sub>CBO</sub>	— —	0.25 0.25	μAdc
Emitter Cutoff Current (V <sub>EB</sub> = 3.0 Vdc, I <sub>C</sub> = 0)		I <sub>EBO</sub>	—	0.1	μAdc

**ON CHARACTERISTICS(1)**

DC Current Gain (I <sub>C</sub> = 1.0 mAdc, V <sub>CE</sub> = 10 Vdc) (I <sub>C</sub> = 10 mAdc, V <sub>CE</sub> = 10 Vdc) (I <sub>C</sub> = 30 mAdc, V <sub>CE</sub> = 10 Vdc)	Both Types Both Types MPSW92 MPSW93	h <sub>FE</sub>	25 40 25 25	— — — —	—
Collector-Emitter Saturation Voltage (I <sub>C</sub> = 20 mAdc, I <sub>B</sub> = 2.0 mAdc)	MPSW92 MPSW93	V <sub>CE(sat)</sub>	— —	0.5 0.5	V <sub>dc</sub>
Base-Emitter Saturation Voltage (I <sub>C</sub> = 20 mAdc, I <sub>B</sub> = 2.0 mAdc)		V <sub>BE(sat)</sub>	—	0.9	V <sub>dc</sub>

**SMALL-SIGNAL CHARACTERISTICS**

Current-Gain — Bandwidth Product (I <sub>C</sub> = 10 mAdc, V <sub>CE</sub> = 20 Vdc, f = 20 MHz)		f <sub>T</sub>	50	—	MHz
Collector-Base Capacitance (V <sub>CB</sub> = 20 Vdc, I <sub>E</sub> = 0, f = 1.0 MHz)	MPSW92 MPSW93	C <sub>cb</sub>	— —	6.0 8.0	pF

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

FIGURE 1 — D.C. CURRENT GAIN

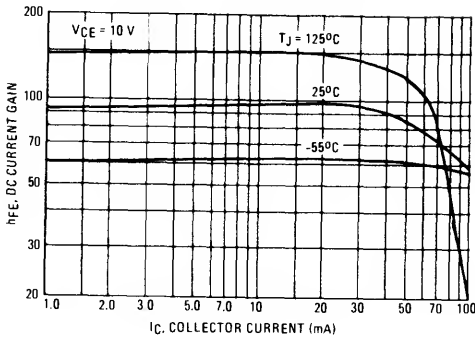


FIGURE 2 — COLLECTOR SATURATION REGION

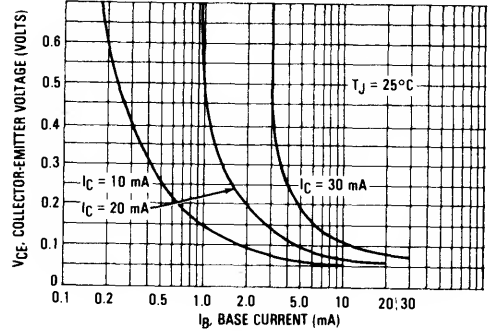


FIGURE 3 — ON VOLTAGES

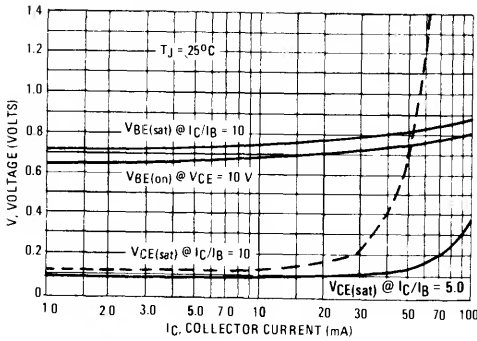


FIGURE 4 — TEMPERATURE COEFFICIENTS

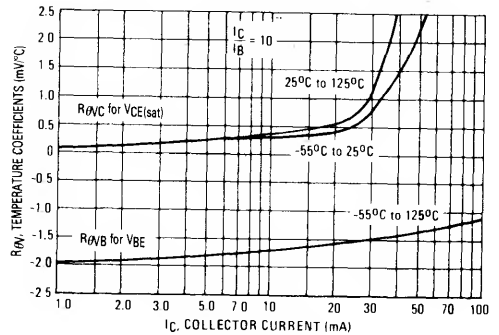


FIGURE 5 — CAPACITANCE

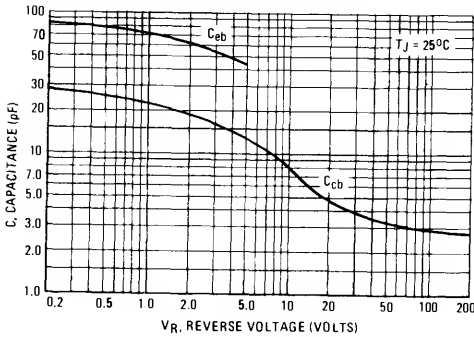


FIGURE 6 — CURRENT GAIN - BANDWIDTH PRODUCT

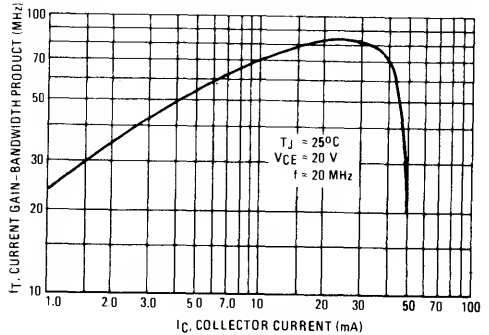


FIGURE 7 — ACTIVE REGION SAFE OPERATING AREA

