

MAXIMUM RATINGS

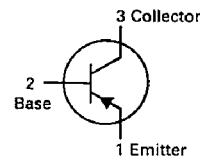
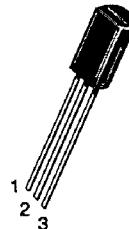
Rating	Symbol	Value	Unit
Collector-Emitter Voltage MPSW51 MPSW51A	V _{CEO}	-30 -40	V _{dc}
Collector-Base Voltage MPSW51 MPSW51A	V _{CBO}	-40 -50	V _{dc}
Emitter-Base Voltage	V _{EBO}	-5.0	V _{dc}
Collector Current — Continuous	I _C	-1000	mAdc
Total Device Dissipation @ T _A = 25°C Derate above 25°C	P _D	1.0 8.0	Watt mW/°C
Total Device Dissipation @ T _C = 25°C Derate above 25°C	P _D	2.5 20	Watts mW/°C
Operating and Storage Junction Temperature Range	T _J , T _{stg}	-55 to +150	°C

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	R _{θJA}	125	°C/W
Thermal Resistance, Junction to Case	R _{θJC}	50	°C/W

MPSW51,A★

CASE 29-05, STYLE 1
TO-92 (TO-226AE)



ONE WATT
HIGH CURRENT TRANSISTORS

PNP SILICON

★MPSW51A is a Motorola
designated preferred device.

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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Breakdown Voltage(1) (I _C = -1.0 mAdc, I _B = 0)	V _{(BR)CEO}	-30 -40	—	V _{dc}
Collector-Base Breakdown Voltage (I _C = -100 μAdc, I _E = 0)	V _{(BR)CBO}	-40 -50	—	V _{dc}
Emitter-Base Breakdown Voltage (I _E = -100 μAdc, I _C = 0)	V _{(BR)EBO}	-5.0	—	V _{dc}
Collector Cutoff Current (V _{CB} = -30 Vdc, I _E = 0) (V _{CB} = -40 Vdc, I _E = 0)	I _{CBO}	—	-0.1 -0.1	μAdc
Emitter Cutoff Current (V _{EB} = -3.0 Vdc, I _C = 0)	I _{EBO}	—	-0.1	μAdc
ON CHARACTERISTICS				
DC Current Gain (I _C = -10 mAdc, V _{CE} = -1.0 Vdc) (I _C = -100 mAdc, V _{CE} = -1.0 Vdc) (I _C = -1000 mAdc, V _{CE} = -1.0 Vdc)	h _{FE}	55 60 50	—	—
Collector-Emitter Saturation Voltage (I _C = -1000 mAdc, I _B = -100 mAdc)	V _{CE(sat)}	—	-0.7	V _{dc}
Base-Emitter On Voltage (I _C = -1000 mAdc, V _{CE} = -1.0 Vdc)	V _{BE(on)}	—	-1.2	V _{dc}
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product (I _C = -50 mAdc, V _{CE} = -10 Vdc, f = 20 MHz)	f _T	50	—	MHz
Output Capacitance (V _{CB} = -10 Vdc, I _E = 0, f = 1.0 MHz)	C _{obo}	—	30	pF

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

FIGURE 1 — DC CURRENT GAIN

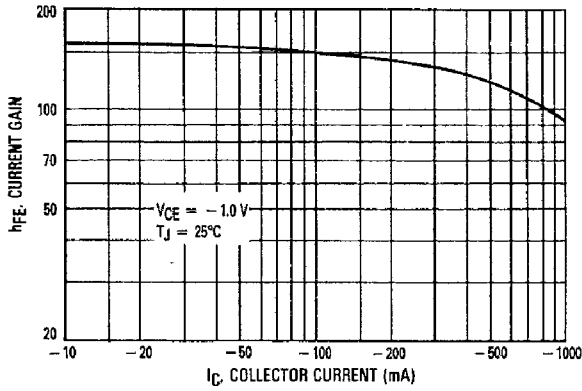


FIGURE 2 — COLLECTOR SATURATION REGION

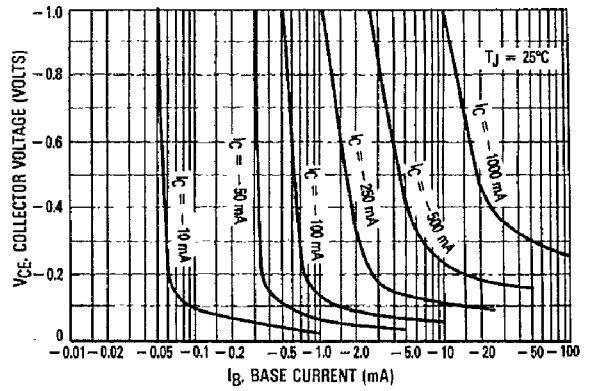


FIGURE 3 — ON VOLTAGES

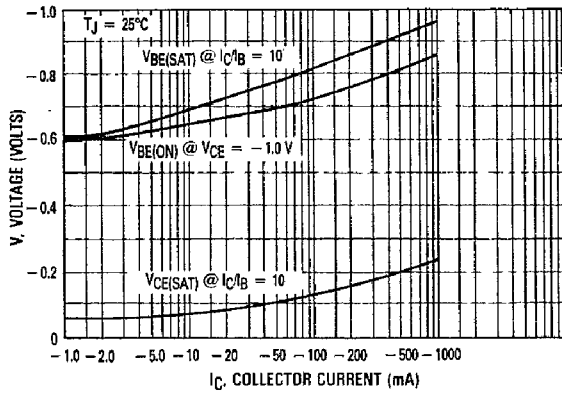


FIGURE 4 — TEMPERATURE COEFFICIENT

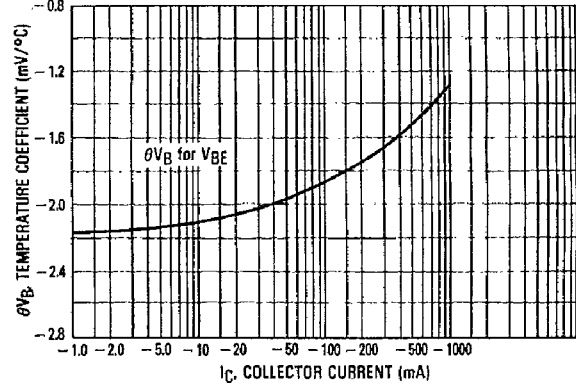


FIGURE 5 — CURRENT GAIN-BANDWIDTH PRODUCT

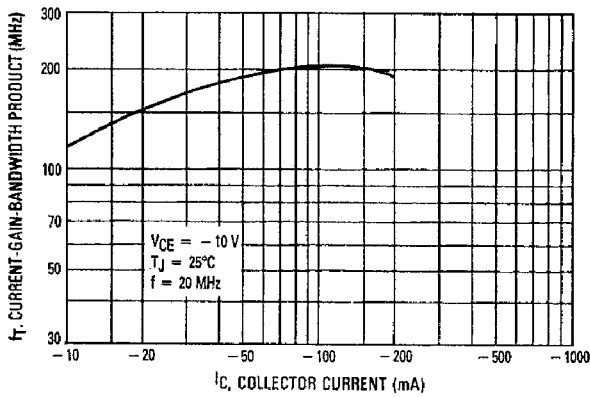


FIGURE 6 — CAPACITANCE

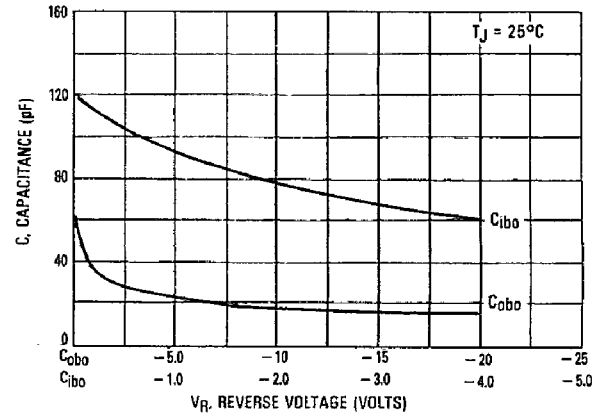


FIGURE 7 — ACTIVE REGION—SAFE OPERATING AREA

