MPS5172

CASE 29-02, STYLE 1
TO-92 (TO-226AA)

AMPLIFIER TRANSISTOR

NPN SILICON*

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	25	Vdc
Collector-Base Voltage	V_{CBO}	25	Vdc
Emitter-Base Voltage	V_{EBO}	5.0	Vdc
Collector Current — Continuous	I_C	100	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	625 5.0	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	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 Case	$R_{\theta JC}$	83.3	°C/W
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	200	°C/W

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

Characteristic	Symbol	Min	Typ	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage (I_C = 10 mAdc, I_B = 0)	$V_{(BR)CEO}$	25	—	—	Vdc
Collector Cutoff Current (V_{CB} = 25 Vdc, I_E = 0) (V_{CB} = 25 Vdc, I_E = 0, T_A = 100°C)	I_{CBO}	— —	— —	100 10	nAdc μAdc
Collector Cutoff Current (V_{CE} = 25 Vdc, V_{BE} = 0)	I_{CES}	—	—	100	nAdc
Emitter Cutoff Current (V_{BE} = 5.0 Vdc, I_C = 0)	I_{EBO}	—	—	100	nAdc
ON CHARACTERISTICS					
DC Current Gain(1) (I_C = 10 mAdc, V_{CE} = 10 Vdc)	h_{FE}	100	—	500	—
Collector-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{CE(sat)}$	—	—	0.25	Vdc
Base-Emitter Saturation Voltage (I_C = 10 mAdc, I_B = 1.0 mAdc)	$V_{BE(sat)}$	—	0.75	—	Vdc
Base-Emitter On Voltage (I_C = 10 mAdc, V_{CE} = 10 Vdc)	$V_{BE(on)}$	0.5	—	1.2	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Current-Gain — Bandwidth Product (I_C = 2.0 mAdc, V_{CE} = 5.0 Vdc)	f_T	—	120	—	MHz
Collector-Base Capacitance (V_{CB} = 0, I_E = 0, f = 1.0 MHz)	C_{cb}	1.6	—	10	pF
Small-Signal Current Gain (I_C = 10 mAdc, V_{CE} = 10 Vdc, f = 1.0 kHz)	h_{fe}	100	—	750	—

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