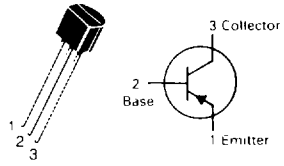
MPS4249
MPS4250

CASE 29-04, STYLE 1
TO-92 (TO-226AA)



TRANSISTORS

PNP SILICON

2

MAXIMUM RATINGS

Rating	Symbol	MPS4250	MPS4249	Unit
Collector-Emitter Voltage	V_{CEO}	−40	−60	Vdc
Collector-Emitter Voltage	V_{CES}	−40	−60	Vdc
Collector-Base Voltage	V_{CBO}	−40	−60	Vdc
Emitter-Base Voltage	V_{EBO}	−5.0	−5.0	Vdc
Collector Current — Continuous	I_C	—	−50	mAdc
Total Device Dissipation @ T_A = 25°C Derate above 25°C	P_D	625 5.0	625 5.0	mW mW/°C
Total Device Dissipation @ T_C = 25°C Derate above 25°C	P_D	1.5 12	1.5 12	mW 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	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/W

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

Characteristic		Symbol	Min	Max	Unit
OFF CHARACTERISTICS					
Collector-Emitter Breakdown Voltage		$V_{(BR)CES}$			Vdc
(I_C = −10 μA)	MPS4249		−60	—	
(I_C = −5.0 mA)	MPS4250		−40	—	
Collector-Emitter Sustaining Voltage(1)		$V_{(BR)CEO(sus)}$			Vdc
(I_C = −5.0)	MPS4250		−40	—	
(I_C = −5.0)	MPS4249		−60	—	
Collector-Base Breakdown Voltage		$V_{(BR)CBO}$			Vdc
(I_C = −10 μA)	MPS4250		−40	—	
(I_C = −10 μA)	MPS4249		−60	—	
Emitter-Base Breakdown Voltage (I_E = −10 μA)		$V_{(BR)EBO}$	−5.0	—	Vdc
Collector Cutoff Current		I_{CBO}			nA
(V_{CB} = −40 V)	MPS4249		—	−10	
(V_{CB} = −50 V)	MPS4250		—	−10	
(V_{CB} = −40 V, T_A = 65°C)	MPS4249, MPS4250		—	−3.0	
Emitter Cutoff Current (V_{EB} = −3.0 V)		I_{EBO}	—	−20	nA
ON CHARACTERISTICS					
DC Current Gain		h_{FE}			—
(I_C = −100 μA, V_{CE} = −5.0 V)	MPS4249		100	300	
(I_C = −1.0 mA, V_{CE} = −5.0 V)	MPS4249		100	—	
(I_C = −1.0 mA, V_{CE} = −5.0 V)	MPS4250		250	—	
(I_C = −10 mA, V_{CE} = −5.0 V)	MPS4249		100	—	
(I_C = −10 mA, V_{CE} = −5.0 V)	MPS4250		250	—	
Collector-Emitter Saturation Voltage(1) (I_C = −10 mA, I_B = −0.5 mA)		$V_{CE(sat)}$	—	−0.25	Vdc
Base-Emitter Saturation Voltage(1) (I_C = −10 mA, I_B = −0.5 mA)		$V_{BE(sat)}$	—	−0.9	Vdc
SMALL-SIGNAL CHARACTERISTICS					
Output Capacitance (V_{CB} = −5.0 V, f = 1.0 MHz)		C_{obo}	—	6.0	pF

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

Characteristic		Symbol	Min	Max	Unit
Input Capacitance (V_{EB} = −0.5 V, f = 1.0 MHz)		C_{ibo}	—	16	pF
Small-Signal Current Gain		h_{fe}			—
(I_C = −1.0 mA, V_{CE} = −5.0 V, f = 1.0 kHz)	MPS4249		100	500	
(I_C = −1.0 mA, V_{CE} = −5.0 V, f = 1.0 kHz)	MPS4250,A		250	800	
(I_C = −0.5 mA, V_{CE} = −5.0 V, f = 20 MHz)	MPS4249,50		2.0	—	
Noise Figure		NF			dB
(I_C = −20 μA, V_{CE} = −5.0 V, R_S = 10 kΩ, f = 1.0 kHz, P_{BW} = 150 Hz)	MPS4250,A		—	2.0	
(I_C = −20 μA, V_{CE} = −5.0 V, R_S = 1.0 kΩ, f = 1.0 kHz, P_{BW} = 150 Hz)	MPS4249		—	3.0	
(I_C = −250 μA, V_{CE} = −5.0 V, R_S = 1.0 kΩ, f = 1.0 kHz, P_{BW} = 150 Hz)	MPS4250,A		—	2.0	
(I_C = −250 μA, V_{CE} = −5.0 V, R_S = 1.0 kΩ, f = 1.0 kHz, P_{BW} = 150 Hz)	MPS4249		—	3.0	

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