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NPN MPS6512 thru MPS6515

PNP MPS6516 thru MPS6519

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

AMPLIFIER TRANSISTOR

Refer to 2N4125 for graphs.

MAXIMUM RATINGS

Rating	Symbol	NPN	PNP	Unit
Collector-Emitter Voltage	V_{CEO}			Vdc
MPS6512, MPS6513		30	—	
MPS6514, MPS6515		25	—	
MPS6516 thru MPS6518		—	40	
MPS6519		—	25	
Collector-Base Voltage	V_{CBO}			Vdc
MPS6512 thru MPS6515		40	—	
MPS6516 thru MPS6518		—	40	
MPS6519		—	25	
Emitter-Base Voltage	V_{EBO}	4.0	4.0	Vdc
Collector Current — Continuous	I_C	100	100	mAdc
Total Device Dissipation @ T_A = 25°C	P_D	625		mW
Derate above 25°C		5.0		mW/°C
Total Device Dissipation @ T_C = 25°C	P_D	1.5		Watts
Derate above 25°C		12		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		$V_{(BR)CEO}$				Vdc
(I_C = 0.5 mAdc, I_B = 0)	MPS6512, MPS6513		30	—	—	
	MPS6514, MPS6515		25	—	—	
(I_C = 0.5 mAdc, I_B = 0)	MPS6516 thru MPS6518		40	—	—	
	MPS6519		25	—	—	
Emitter-Base Breakdown Voltage (I_E = 10 μAdc, I_C = 0)		$V_{(BR)EBO}$	4.0	—	—	Vdc
(I_E = 10 μAdc, I_C = 0)			4.0	—	—	
Collector Cutoff Current		I_{CBO}				μAdc
(V_{CB} = 30 Vdc, I_E = 0)			—	—	0.05	
(V_{CB} = 30 Vdc, I_E = 0)	MPS6516 thru MPS6518		—	—	0.05	
(V_{CB} = 20 Vdc, I_E = 0)	MPS6519		—	—	0.05	
ON CHARACTERISTICS						
DC Current Gain		h_{FE}				—
(I_C = 2.0 mAdc, V_{CE} = 10 Vdc)	MPS6512		50	—	100	
	MPS6513		90	—	180	
	MPS6514		150	—	300	
	MPS6515		250	—	500	
(I_C = 100 mAdc, V_{CE} = 10 Vdc)(1)	MPS6512		30	—	—	
	MPS6513		60	—	—	
	MPS6514		90	—	—	
	MPS6515		150	—	—	
(I_C = 2.0 mAdc, V_{CE} = 10 Vdc)	MPS6516		50	—	100	
	MPS6517		90	—	180	
	MPS6518		150	—	300	
	MPS6519		250	—	500	
(I_C = 100 mAdc, V_{CE} = 10 Vdc)(1)	MPS6516		30	—	—	
	MPS6517		60	—	—	
	MPS6518		90	—	—	
	MPS6519		150	—	—	
Collector-Emitter Saturation Voltage (I_C = 50 mAdc, I_B = 5.0 mAdc)		$V_{CE(sat)}$	—	—	0.5	Vdc
(I_C = 50 mAdc, I_B = 5.0 mAdc)			—	—	0.5	
SMALL-SIGNAL CHARACTERISTICS						
Output Capacitance (V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)		C_{obo}	—	—	3.5	pF
(V_{CB} = 10 Vdc, I_E = 0, f = 100 kHz)			—	—	4.0	

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