

New Jersey Semi-Conductor Products, Inc.

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NPN
MPS6512
thru MPS6515

PNP
MPS6516
thru MPS6519

TO-92



AMPLIFIER TRANSISTOR

MAXIMUM RATINGS

Rating	Symbol	NPN	PNP	Unit
Collector-Emitter Voltage MPS6512, MPS6513 MPS6514, MPS6515 MPS6516 thru MPS6518 MPS6519	V _{CEO}	30 25 — —	— — 40 25	V _{dc}
Collector-Base Voltage MPS6512 thru MPS6515 MPS6516 thru MPS6518 MPS6519	V _{CB0}	40 — —	— 40 25	V _{dc}
Emitter-Base Voltage	V _{EBO}	4.0	4.0	V _{dc}
Collector Current — Continuous	I _C	100	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 _{θJC}	83.3	°C/W
Thermal Resistance, Junction to Ambient	R _{θJA}	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 = 0.5 mAdc, I _B = 0)	V _{(BR)CEO}	30	—	—	V _{dc}
MPS6512, MPS6513 MPS6514, MPS6515		25	—	—	
(I _C = 0.5 mAdc, I _B = 0)	V _{(BR)CEO}	40	—	—	V _{dc}
MPS6516 thru MPS6518 MPS6519		25	—	—	
Emitter-Base Breakdown Voltage (I _E = 10 μAdc, I _C = 0)	V _{(BR)EBO}	4.0	—	—	V _{dc}
(I _E = 10 μAdc, I _C = 0)		4.0	—	—	
Collector Cutoff Current (V _{CB} = 30 Vdc, I _E = 0)	I _{CB0}	—	—	0.05	μAdc
(V _{CB} = 30 Vdc, I _E = 0)		—	—	0.05	
(V _{CB} = 20 Vdc, I _E = 0)		—	—	0.05	



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Quality Semi-Conductors

ON CHARACTERISTICS

DC Current Gain ($I_C = 2.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	MPS6512	hFE	50	—	100	—
	MPS6513		90	—	180	
	MPS6514		150	—	300	
	MPS6515		250	—	500	
($I_C = 100 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)(1)	MPS6512	hFE	30	—	—	—
	MPS6513		60	—	—	
	MPS6514		90	—	—	
	MPS6515		150	—	—	
($I_C = 2.0 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)	MPS6516	hFE	50	—	100	—
	MPS6517		90	—	180	
	MPS6518		150	—	300	
	MPS6519		250	—	500	
($I_C = 100 \text{ mAdc}$, $V_{CE} = 10 \text{ Vdc}$)(1)	MPS6516	hFE	30	—	—	—
	MPS6517		60	—	—	
	MPS6518		90	—	—	
	MPS6519		150	—	—	
Collector-Emitter Saturation Voltage	($I_C = 50 \text{ mAdc}$, $I_B = 5.0 \text{ mAdc}$) ($I_C = 50 \text{ mAdc}$, $I_B = 5.0 \text{ mAdc}$)	$V_{CE(sat)}$	—	—	0.5 0.5	Vdc

SMALL-SIGNAL CHARACTERISTICS

Output Capacitance ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 100 \text{ kHz}$) ($V_{CB} = 10 \text{ Vdc}$, $I_E = 0$, $f = 100 \text{ kHz}$)	C_{obo}	—	—	3.5	pF
		—	—	4.0	

(1) Pulse Test: Pulse Width $\leq 300 \mu\text{s}$, Duty Cycle $\leq 2.0\%$.