

MPS6530
MPS6531 } NPN (SILICON)
MPS6532
MPS6533
MPS6534 } PNP (SILICON)
MPS6535

NPN/PNP SILICON ANNULAR TRANSISTORS

... designed for use in complementary amplifier applications.

- Collector-Emitter Breakdown @ $I_C = 10 \text{ mAdc}$
 $BV_{CEO} = 40 \text{ Vdc (Min) MPS6530,6531,6533,6534}$
 $30 \text{ Vdc (Min) MPS6532,6535}$
- DC Current Gain Specified – 10 mAdc to 500 mAdc
- Current-Gain-Bandwidth Product @ $I_C = 50 \text{ mAdc}$
 $f_T = 390 \text{ MHz (Typ) NPN}$
 $260 \text{ MHz (Typ) PNP}$

MAXIMUM RATINGS

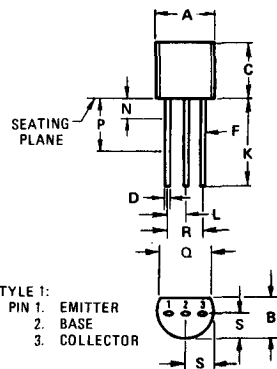
Rating	Symbol	NPN	PNP	Unit
Collector-Base Voltage MPS6530, MPS6531, MPS6532 MPS6532 MPS6533, MPS6534 MPS6535	V_{CB}	60 50	40 30	Vdc
Collector-Emitter Voltage MPS6530, MPS6531 MPS6532 MPS6533, MPS6534 MPS6535	V_{CEO}	40 30	40 30	Vdc
Emitter-Base Voltage	V_{EB}	5.0	4.0	Vdc
Collector Current – Continuous	I_C	600		mAdc
Total Power Dissipation @ $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	350 2.8		mW mW/ $^\circ\text{C}$
Total Power Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	1.0 8.0		Watt mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-55 to +150		$^\circ\text{C}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction to Ambient	$R_{\theta JA} (1)$	357	$^\circ\text{C/W}$
Thermal Resistance, Junction to Case	$R_{\theta JC}$	125	$^\circ\text{C/W}$

(1) $R_{\theta JA}$ is measured with the device soldered into a typical printed circuit board.

**NPN/PNP SILICON
COMPLEMENTARY
AMPLIFIER
TRANSISTORS**



	MILLIMETERS		INCHES	
DIM	MIN	MAX	MIN	MAX
A	4.450	5.200	0.175	0.205
B	3.180	4.180	0.125	0.165
C	4.320	5.330	0.170	0.210
D	0.407	0.533	0.016	0.021
F	0.407	0.482	0.016	0.019
K	12.700	—	0.500	—
L	1.150	1.390	0.045	0.055
N	—	1.270	—	0.050
P	6.350	—	0.250	—
Q	3.430	—	0.135	—
R	2.410	2.670	0.095	0.105
S	2.030	2.670	0.080	0.105

CASE 29-02
TO-92

MPS6530 thru MPS6535 (continued)

MPS6530 thru MPS6532 (NPN)

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

Characteristic		Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage (I _C = 10 μAdc, I _E = 0)	MPS6530, MPS6531 MPS6532	BV _{CBO}	60 50	-	-	Vdc
Collector-Emitter Breakdown Voltage (I _C = 10 mAdc, I _B = 0)	MPS6530, MPS6531 MPS6532	BV _{CEO}	40 30	-	-	Vdc
Emitter-Base Breakdown Voltage (I _B = 10 μAdc, I _C = 0)		BV _{EBO}	5.0	-	-	Vdc
Collector Cutoff Current (V _{CB} = 40 Vdc, I _E = 0) (V _{CB} = 30 Vdc, I _E = 0) (V _{CB} = 40 Vdc, I _E = 0, T _A = 60°C) (V _{CB} = 30 Vdc, I _E = 0, T _A = 60°C)	MPS6530, MPS6531 MPS6532 MPS6530, MPS6531 MPS6532	I _{CBO}	- - - -	- - - -	0.05 0.1 2.0 5.0	μAdc
DC Current Gain (1) (I _C = 10 mAdc, V _{CE} = 1 Vdc) (I _C = 100 mAdc, V _{CE} = 1 Vdc) (I _C = 500 mAdc, V _{CE} = 10 Vdc)	MPS6530 MPS6531 MPS6530 MPS6531 MPS6530 MPS6531	h _{FE}	30 60 40 90 30 25 50	75 120 85 150 - 60 80	- - 120 270 - -	-
Collector-Emitter Saturation Voltage (1) (I _C = 100 mAdc, I _B = 10 mAdc)	MPS6530, MPS6532 MPS6531	V _{CE(sat)}	-	0.2 0.13	0.5 0.3	Vdc
Base-Emitter Saturation Voltage (1) (I _C = 100 mAdc, I _B = 10 mAdc)	MPS6530, MPS6531 MPS6532	V _{BE(sat)}	-	0.82 0.85	1.0 1.2	Vdc
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 100 kHz)		C _{ob}	-	3.5	5.0	pF
Current-Gain-Bandwidth Product (1) (I _C = 50 mAdc, V _{CE} = 10 Vdc)		f _T	-	390	-	MHz

MPS6533 thru MPS6535 (PNP)

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

Characteristic		Symbol	Min	Typ	Max	Unit
Collector-Base Breakdown Voltage (I _C = 10 μAdc, I _E = 0)	MPS6533, MPS6534 MPS6535	BV _{CBO}	40 30	-	-	Vdc
Collector-Emitter Breakdown Voltage (I _C = 10 mAdc, I _B = 0)	MPS6533, MPS6534 MPS6535	BV _{CEO}	40 30	-	-	Vdc
Emitter-Base Breakdown Voltage (I _B = 10 μAdc, I _C = 0)		BV _{EBO}	4.0	-	-	Vdc
Collector Cutoff Current (V _{CB} = 30 Vdc, I _E = 0) (V _{CB} = 20 Vdc, I _E = 0) (V _{CB} = 30 Vdc, I _E = 0, T _A = 60°C) (V _{CB} = 20 Vdc, I _E = 0, T _A = 60°C)	MPS6533, MPS6534 MPS6535 MPS6533, MPS6534 MPS6535	I _{CBO}	- - - -	- - - -	0.05 0.1 2.0 5.0	μAdc
DC Current Gain (1) (I _C = 10 mAdc, V _{CE} = 1 Vdc) (I _C = 100 mAdc, V _{CE} = 1 Vdc) (I _C = 500 mAdc, V _{CE} = 10 Vdc)	MPS6533 MPS6534 MPS6533 MPS6534 MPS6533 MPS6534	h _{FE}	30 60 40 90 30 25 50	70 110 85 140 - 55 70	- - 120 270 - -	-
Collector-Emitter Saturation Voltage (1) (I _C = 100 mAdc, I _B = 10 mAdc)	MPS6533, MPS6535 MPS6534	V _{CE(sat)}	-	0.2 0.13	0.5 0.3	Vdc
Base-Emitter Saturation Voltage (1) (I _C = 100 mAdc, I _B = 10 mAdc)	MPS6533, MPS6534 MPS6535	V _{BE(sat)}	-	0.84 0.87	1.0 1.2	Vdc
Output Capacitance (V _{CB} = 10 Vdc, I _E = 0, f = 100 kHz)		C _{ob}	-	4.8	6.0	pF
Current-Gain-Bandwidth Product (1) (I _C = 50 mAdc, V _{CE} = 10 Vdc)		f _T	-	260	-	MHz

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