

## MPS6521 (NPN) MPS6523 (PNP)

### Amplifier Transistors

#### Features

- Voltage and Current are Negative for PNP Transistors

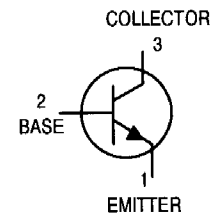
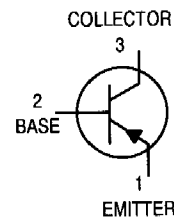
#### MAXIMUM RATINGS

Rating	Symbol	NPN	PNP	Unit
Collector - Emitter Voltage MPS6521 MPS6523	$V_{CE0}$	25 -	- 25	Vdc
Collector - Base Voltage MPS6521 MPS6523	$V_{CBO}$	40 -	- 25	Vdc
Emitter - Base Voltage	$V_{EBO}$	4.0		Vdc
Collector Current - Continuous	$I_C$	100		mAdc
Total Device Dissipation @ $T_A = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	625 5.0		mW mW/ $^\circ\text{C}$
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above $25^\circ\text{C}$	$P_D$	1.5 12		W mW/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	$T_J, T_{stg}$	-55 to +150		$^\circ\text{C}$

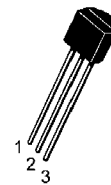
#### THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Ambient (Printed Circuit Board Mounting)	$R_{\theta JA}$	200	$^\circ\text{C/W}$
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	83.3	$^\circ\text{C/W}$

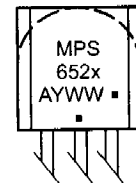
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.



#### MARKING DIAGRAM



TO-92



MPS652x = Device Code  
x = 1 or 3  
A = Assembly Location  
Y = Year  
WW = Work Week



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## MPS6521 (NPN)    MPS6523 (PNP)

### ELECTRICAL CHARACTERISTICS ( $T_A = 25^\circ\text{C}$ unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit			
<b>OFF CHARACTERISTICS</b>							
Collector-Emitter Breakdown Voltage ( $I_C = 0.5 \text{ mAdc}$ , $I_B = 0$ )	$V_{(BR)CEO}$	25	-	Vdc			
Emitter-Base Breakdown Voltage ( $I_E = 10 \text{ }\mu\text{Adc}$ , $I_C = 0$ )	$V_{(BR)EBO}$	4.0	-	Vdc			
Collector Cutoff Current ( $V_{CB} = 30 \text{ Vdc}$ , $I_E = 0$ ) ( $V_{CB} = 20 \text{ Vdc}$ , $I_E = 0$ )	$I_{CBO}$	-	0.05	$\mu\text{Adc}$			
	MPS6521	-	0.05				
	MPS6523	-	0.05				
<b>ON CHARACTERISTICS</b>							
DC Current Gain ( $I_C = 100 \text{ }\mu\text{Adc}$ , $V_{CE} = 10 \text{ Vdc}$ )	$h_{FE}$	150	-	-			
( $I_C = 2.0 \text{ mAdc}$ , $V_{CE} = 10 \text{ Vdc}$ )					MPS6521	300	600
( $I_C = 100 \text{ }\mu\text{Adc}$ , $V_{CE} = 10 \text{ Vdc}$ )					MPS6523	150	-
( $I_C = 2.0 \text{ mAdc}$ , $V_{CE} = 10 \text{ Vdc}$ )					MPS6523	300	600
Collector-Emitter Saturation Voltage ( $I_C = 50 \text{ mAdc}$ , $I_B = 5.0 \text{ mAdc}$ )	$V_{CE(sat)}$	-	0.5	Vdc			
<b>SMALL-SIGNAL CHARACTERISTICS</b>							
Output Capacitance ( $V_{CB} = 10 \text{ Vdc}$ , $I_E = 0$ , $f = 1.0 \text{ MHz}$ )	$C_{obo}$	-	3.5	pF			
Noise Figure ( $I_C = 10 \text{ }\mu\text{Adc}$ , $V_{CE} = 5.0 \text{ Vdc}$ , $R_S = 10 \text{ k}\Omega$ , Power Bandwidth = 15.7 kHz, 3.0 dB points @ 10 Hz and 10 kHz)	NF	-	3.0	dB			

### NPN MPS6521 EQUIVALENT SWITCHING TIME TEST CIRCUITS

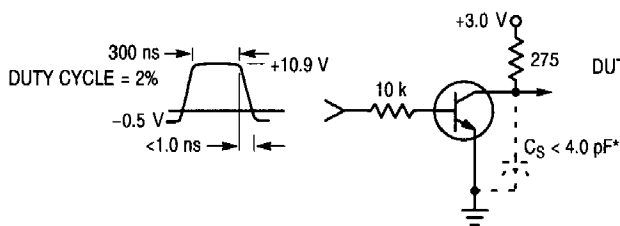


Figure 1. Turn-On Time

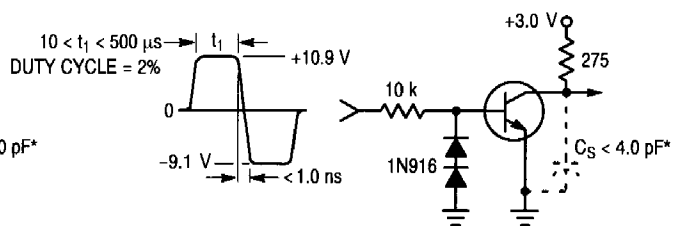


Figure 2. Turn-Off Time

\*Total shunt capacitance of test jig and connectors