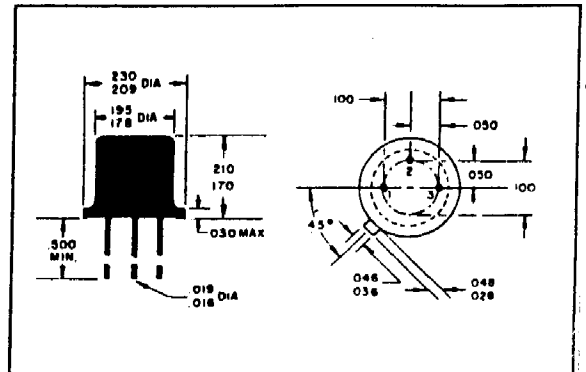


# 2N2784

## NPN SILICON TRANSISTOR



### MECHANICAL DATA

CASE: JEDEC TO-18  
 TERMINAL CONNECTIONS:  
 Lead 1 Emitter  
 Lead 2 Base  
 Lead 3 Collector (Electrically connected to case)

### ELECTRICAL DATA

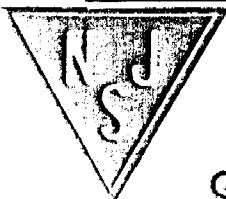
#### ABSOLUTE MAXIMUM RATINGS:

Collector to Base Voltage $V_{CRO}$	15 volts
Collector to Emitter Voltage $V_{CEO}$	6.0 volts
Emitter to Base Voltage $V_{EBO}$	4.0 volts
Total Device Dissipation	
@ Case Temperature 25° C	0.88 watts
@ Case Temperature 100° C	0.5 watts
@ Free Air Temperature 25° C	0.3 watts
Junction Temperature (Operating)	-65° C to +200° C
Storage Temperature	-65° C to +300° C

#### ELECTRICAL CHARACTERISTICS: @25° C (unless otherwise noted)

PARAMETER	SYM.	CONDITIONS	MIN.	TYP.	MAX.	UNITS
Collector to Base Breakdown Voltage	$BV_{CRO}$	$I_C=10 \mu A$	15			volts
Collector to Emitter Breakdown Voltage ▲	$BV_{CEO}$	$I_C=10 mA$	6.0			volts
Emitter to Base Breakdown Voltage	$BV_{EBO}$	$I_E=10 \mu A$	4.0			volts
Collector Cutoff Current	$I_{CBO}$	$V_{CB}=5.0 V$			5.0	nA
Collector Cutoff Current	$I_{CRO2}$	$V_{CB}=5 V, TA=+150° C$			5.0	$\mu A$
Collector Reverse Current	$I_{CEX}$	$V_{CE}=6.0 V, V_{EB}=0.4 V$			10	nA
Base Current	$I_B$	$V_{CE}=6.0 V, V_{EB}=0.4 V$			10	nA
DC Current Gain ▲	$h_{FE1}$	$V_{CE}=0.5 V, I_C=10 mA$	40		120	
DC Current Gain ▲	$h_{FE2}$	$V_{CE}=1.0 V, I_C=30 mA$	20			
DC Current Gain	$h_{FE3}$	$V_{CE}=0.5 V, I_C=10 mA, TA=-55° C$	10			
Collector to Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C=3.0 mA, I_B=0.15 mA$			0.26	volts
Base to Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C=3.0 mA, I_B=0.15 mA$	0.70		0.85	volts
Collector Capacitance	Cob	$V_{CB}=5 V, I_E=0 mA$			3.0	pf
Input Capacitance	Cib	$V_{FB}=0.5 V, I_C=0 mA$			2.0	pf
High Frequency Current Gain	$h_{fe}$	$V_{CE}=4.0 V, I_C=5.0 mA, f=100 mc$	10			mc
Charge Storage Time Constant	$\tau_s$	$I_C=I_{R1}=I_{R2}=5.0 mA$ (See Fig. 1)			5.0	nsec
Turn-On Time	$t_{on}$	$I_C=10 mA, I_{R1}=2.0 mA, I_{R2}=1.0 mA$ (See Fig. 2)			9.0	nsec
Turn-Off Time	$t_{off}$	$I_C=10 mA, I_{R1}=I_{R2}=1.0 mA$ (See Fig. 2)			9.0	nsec

▲ Measured with 300  $\mu$ Sec, 2% duty cycle pulse



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