

2N5194, 2N5195

Preferred Devices

Silicon PNP Power Transistors

These devices are designed for use in power amplifier and switching circuits; excellent safe area limits. Complement to NPN 2N5191, 2N5192.

Features

- Pb-Free Packages are Available*

MAXIMUM RATINGS (Note 1)

Rating	Symbol	2N5194	2N5195	Unit
Collector-Emitter Voltage	V_{CEO}	60	80	Vdc
Collector-Base Voltage	V_{CB}	60	80	Vdc
Emitter-Base Voltage	V_{EB}	5.0		Vdc
Collector Current	I_C	4.0		Adc
Base Current	I_B	1.0		Adc
Total Device Dissipation @ $T_C = 25^\circ\text{C}$ Derate above 25°C	P_D	40	320	W W/ $^\circ\text{C}$
Operating and Storage Junction Temperature Range	T_J, T_{stg}	-65 to +150		$^\circ\text{C/W}$

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Thermal Resistance, Junction-to-Case	θ_{JC}	3.12	$^\circ\text{C/W}$

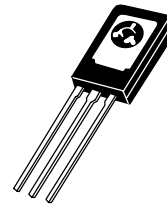
Stresses exceeding Maximum Ratings may damage the device. Maximum Ratings are stress ratings only. Functional operation above the Recommended Operating Conditions is not implied. Extended exposure to stresses above the Recommended Operating Conditions may affect device reliability.

1. Indicates JEDEC registered data.



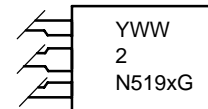
ON Semiconductor®

4 AMPERE POWER TRANSISTORS PNP SILICON 60 – 80 VOLTS



TO-225AA
CASE 77-09
STYLE 1

MARKING DIAGRAM



Y = Year
WW = Work Week
2N519x = Device Code
x = 4 or 5
G = Pb-Free Package

ORDERING INFORMATION

Device	Package	Shipping
2N5194	TO-225	500 Units / Bulk
2N5194G	TO-225 (Pb-Free)	500 Units / Bulk
2N5195	TO-225	500 Units / Bulk
2N5195G	TO-225 (Pb-Free)	500 Units / Bulk

Preferred devices are recommended choices for future use and best overall value.

*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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ELECTRICAL CHARACTERISTICS ($T_C = 25^\circ\text{C}$ unless otherwise noted) (Note 2)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector-Emitter Sustaining Voltage (Note 3) ($I_C = 0.1\text{ Adc}$, $I_B = 0$)	$V_{CEO(sus)}$	60 80	- -	Vdc
Collector Cutoff Current ($V_{CE} = 60\text{ Vdc}$, $I_B = 0$) ($V_{CE} = 80\text{ Vdc}$, $I_B = 0$)	I_{CEO}	- -	1.0 1.0	mAdc
Collector Cutoff Current ($V_{CE} = 60\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$) ($V_{CE} = 80\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$) ($V_{CE} = 60\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$, $T_C = 125^\circ\text{C}$) ($V_{CE} = 80\text{ Vdc}$, $V_{BE(off)} = 1.5\text{ Vdc}$, $T_C = 125^\circ\text{C}$)	I_{CEX}	- - - -	0.1 0.1 2.0 2.0	mAdc
Collector Cutoff Current ($V_{CB} = 60\text{ Vdc}$, $I_E = 0$) ($V_{CB} = 80\text{ Vdc}$, $I_E = 0$)	I_{CBO}	- -	0.1 0.1	mAdc
Emitter Cutoff Current ($V_{BE} = 5.0\text{ Vdc}$, $I_C = 0$)	I_{EBO}	-	1.0	mAdc
ON CHARACTERISTICS				
DC Current Gain (Note 3) ($I_C = 1.5\text{ Adc}$, $V_{CE} = 2.0\text{ Vdc}$) ($I_C = 4.0\text{ Adc}$, $V_{CE} = 2.0\text{ Vdc}$)	h_{FE}	25 20 10 7.0	100 80 - -	-
Collector-Emitter Saturation Voltage (Note 3) ($I_C = 1.5\text{ Adc}$, $I_B = 0.15\text{ Adc}$) ($I_C = 4.0\text{ Adc}$, $I_B = 1.0\text{ Adc}$)	$V_{CE(sat)}$	- -	0.6 1.4	Vdc
Base-Emitter On Voltage (Note 3) ($I_C = 1.5\text{ Adc}$, $V_{CE} = 2.0\text{ Vdc}$)	$V_{BE(on)}$	-	1.2	Vdc
DYNAMIC CHARACTERISTICS				
Current-Gain — Bandwidth Product ($I_C = 1.0\text{ Adc}$, $V_{CE} = 10\text{ Vdc}$, $f = 1.0\text{ MHz}$)	f_T	2.0	-	MHz

2. Indicates JEDEC registered data.
3. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

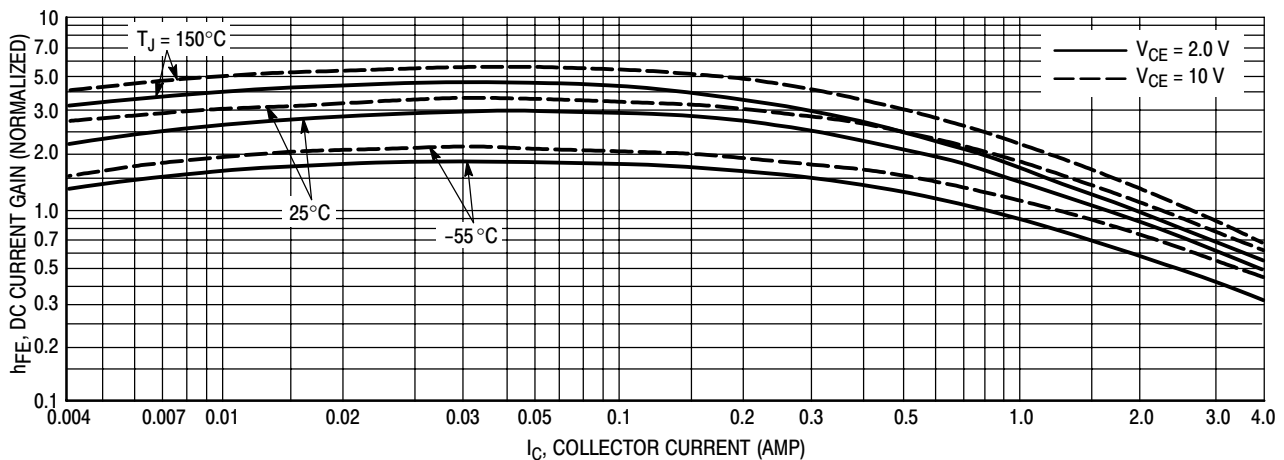
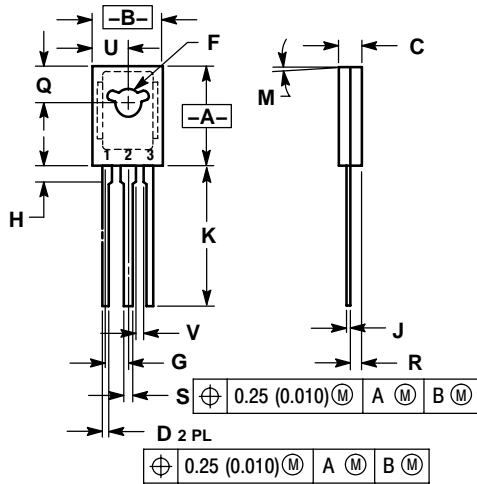


Figure 1. DC Current Gain

2N5194, 2N5195

PACKAGE DIMENSIONS

TO-225
CASE 77-09
ISSUE Z



NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.
3. 077-01 THRU -08 OBSOLETE, NEW STANDARD 077-09.

DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.425	0.435	10.80	11.04
B	0.295	0.305	7.50	7.74
C	0.095	0.105	2.42	2.66
D	0.020	0.026	0.51	0.66
F	0.115	0.130	2.93	3.30
G	0.094 BSC		2.39 BSC	
H	0.050	0.095	1.27	2.41
J	0.015	0.025	0.39	0.63
K	0.575	0.655	14.61	16.63
M	5° TYP		5° TYP	
Q	0.148	0.158	3.76	4.01
R	0.045	0.065	1.15	1.65
S	0.025	0.035	0.64	0.88
U	0.145	0.155	3.69	3.93
V	0.040	---	1.02	---

STYLE 1:

1. EMITTER
2. COLLECTOR
3. BASE