



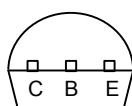
Micro Commercial Components
21201 Itasca Street Chatsworth
CA 91311
Phone: (818) 701-4933
Fax: (818) 701-4939

NPN
2N6515, 2N6517
PNP
2N6519, 2N6520

Features

- Through Hole Package
- 150°C Junction Temperature
- Voltage and Current are negative for PNP transistors

Pin Configuration
Bottom View



Mechanical Data

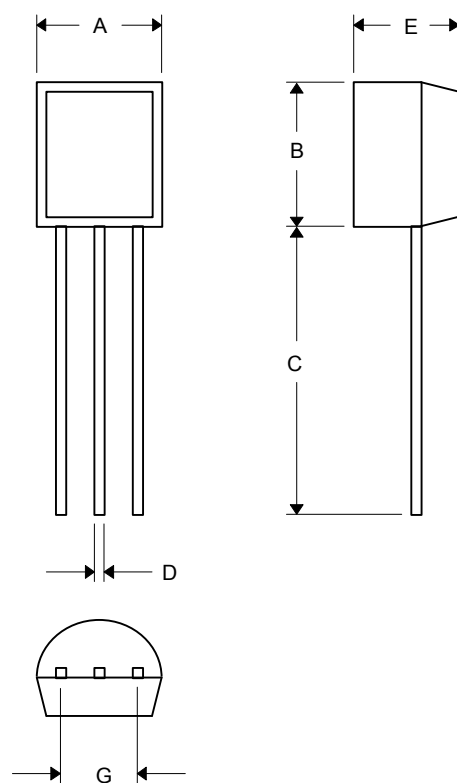
- Case: TO-92, Molded Plastic
- Polarity: indicated as above.

Maximum Ratings @ 25°C Unless Otherwise Specified

Charateristic	Symbol	Value	Unit
Collector-Emitter Voltage 2N6515 2N6519 2N6517, 2N6520	V_{CEO}	250 300 350	V
Collector-Base Voltage 2N6515 2N6519 2N6517, 2N6520	V_{CBO}	250 300 350	V
Emitter-Base Voltage 2N6515-6517 2N6519-6520	V_{EBO}	6.0 5.0	V
Base Current	I_B	250	mA
Collector Current(DC)	I_C	500	mA
Power Dissipation@TA=25°C	P_d	625 5.0	W mW/°C
Power Dissipation@TC=25°C	P_d	1.5 12	W mW/°C
Thermal Resistance, Junction to Ambient Air	$R_{\theta JA}$	200	°C/W
Thermal Resistance, Junction to Case	$R_{\theta JC}$	83.3	°C/W
Operating & Storage Temperature	T_j, T_{STG}	-55~150	°C

High Voltage
Transistor
625mW

TO-92



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.175	.185	4.45	4.70	
B	.175	.185	4.46	4.70	
C	.500	---	12.7	---	
D	.016	.020	0.41	0.63	
E	.135	.145	3.43	3.68	
G	.095	.105	2.42	2.67	

NPN 2N6515 2N6517

PNP 2N6519 2N6520



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

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage ⁽¹⁾ (I _C = 1.0 mAdc, I _B = 0)	V _{(BR)CEO}	250 300 350	— — —	Vdc
Collector–Base Breakdown Voltage (I _C = 100 µAdc, I _E = 0)	V _{(BR)CBO}	250 300 350	— — —	Vdc
Emitter–Base Breakdown Voltage (I _E = 10 µAdc, I _C = 0)	V _{(BR)EBO}	6.0 5.0	— —	Vdc
Collector Cutoff Current (V _{CB} = 150 Vdc, I _E = 0) (V _{CB} = 200 Vdc, I _E = 0) (V _{CB} = 250 Vdc, I _E = 0)	I _{CBO}	— — —	50 50 50	nAdc
Emitter Cutoff Current (V _{EB} = 5.0 Vdc, I _C = 0) (V _{EB} = 4.0 Vdc, I _C = 0)	I _{EBO}	— —	50 50	nAdc
ON CHARACTERISTICS⁽¹⁾				
DC Current Gain (I _C = 1.0 mAdc, V _{CE} = 10 Vdc)	h _{FE}	35 30 20	— — —	—
(I _C = 10 mAdc, V _{CE} = 10 Vdc)		50 45 30	— — —	—
(I _C = 30 mAdc, V _{CE} = 10 Vdc)		50 45 30	300 270 200	—
(I _C = 50 mAdc, V _{CE} = 10 Vdc)		45 40 20	220 200 200	—
(I _C = 100 mAdc, V _{CE} = 10 Vdc)		25 20 15	— — —	—
Collector–Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc) (I _C = 20 mAdc, I _B = 2.0 mAdc) (I _C = 30 mAdc, I _B = 3.0 mAdc) (I _C = 50 mAdc, I _B = 5.0 mAdc)	V _{CE(sat)}	— — — —	0.30 0.35 0.50 1.0	Vdc
Base–Emitter Saturation Voltage (I _C = 10 mAdc, I _B = 1.0 mAdc) (I _C = 20 mAdc, I _B = 2.0 mAdc) (I _C = 30 mAdc, I _B = 3.0 mAdc)	V _{BE(sat)}	— — —	0.75 0.85 0.90	Vdc
Base–Emitter On Voltage (I _C = 100 mAdc, V _{CE} = 10 Vdc)	V _{BE(on)}	—	2.0	Vdc

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

NPN 2N6515 2N6517

PNP 2N6519 2N6520



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

Characteristic	Symbol	Min	Max	Unit
SMALL-SIGNAL CHARACTERISTICS				
Current-Gain — Bandwidth Product ⁽¹⁾ ($I_C = 10\text{ mA}$, $V_{CE} = 20\text{ V}$, $f = 20\text{ MHz}$)	f_T	40	200	MHz
Collector-Base Capacitance ($V_{CB} = 20\text{ V}$, $I_E = 0$, $f = 1.0\text{ MHz}$)	C_{cb}	—	6.0	pF
Emitter-Base Capacitance ($V_{EB} = 0.5\text{ V}$, $I_C = 0$, $f = 1.0\text{ MHz}$)	C_{eb}	—	80 100	pF

SWITCHING CHARACTERISTICS

Turn-On Time ($V_{CC} = 100\text{ V}$, $V_{BE(off)} = 2.0\text{ V}$, $I_C = 50\text{ mA}$, $I_{B1} = 10\text{ mA}$)	t_{on}	—	200	μs
Turn-Off Time ($V_{CC} = 100\text{ V}$, $I_C = 50\text{ mA}$, $I_{B1} = I_{B2} = 10\text{ mA}$)	t_{off}	—	3.5	μs

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

NPN 2N6515 2N6517 PNP 2N6519 2N6520

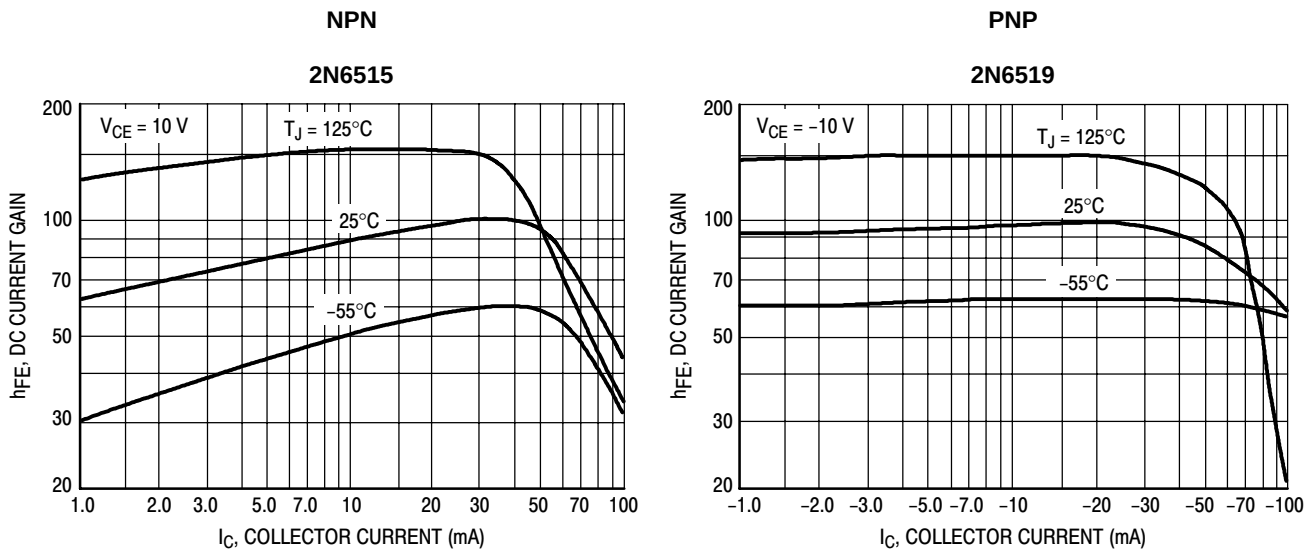


Figure 1. DC Current Gain

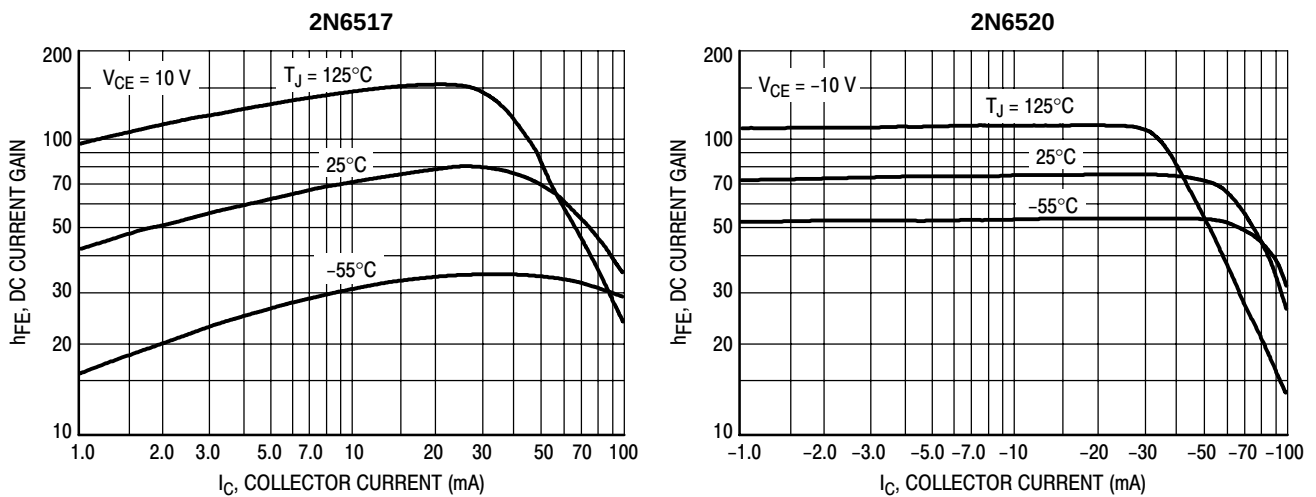


Figure 2. DC Current Gain

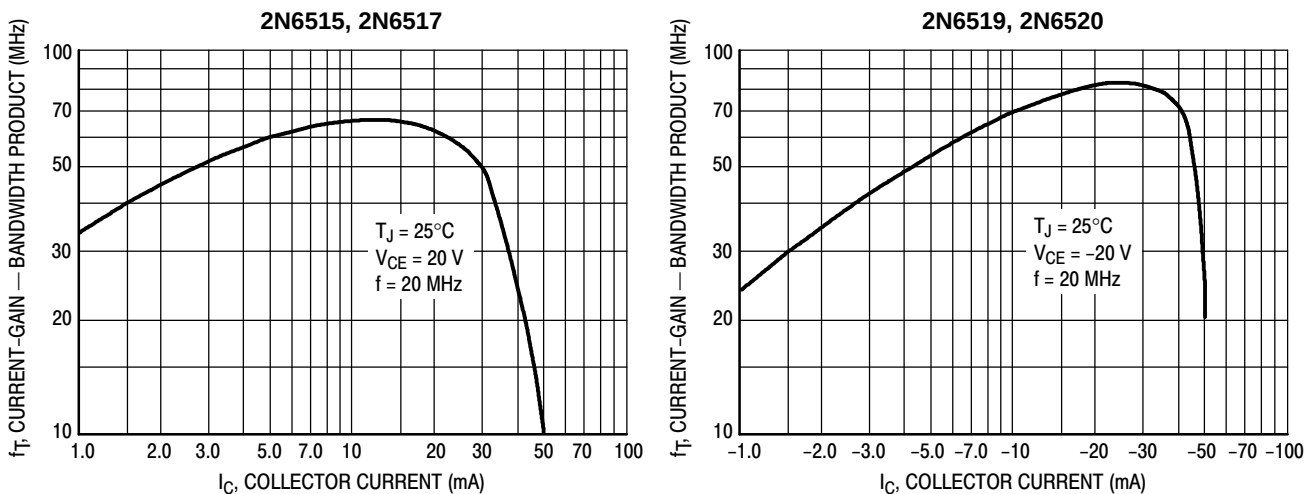


Figure 3. Current-Gain — Bandwidth Product

NPN 2N6515 2N6517 PNP 2N6519 2N6520



NPN

PNP

2N6515, 2N6517

2N6519, 2N6520

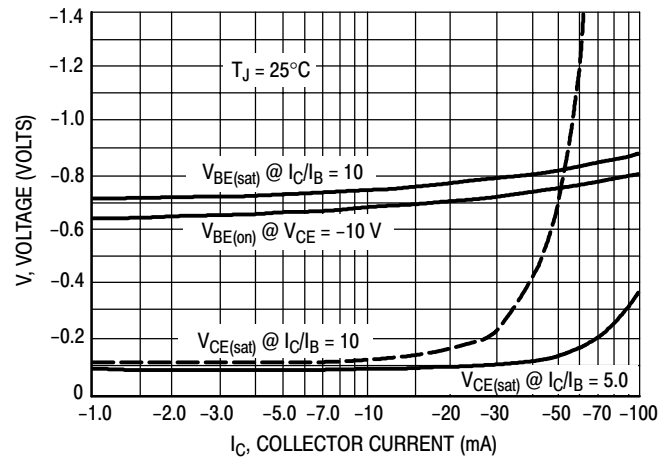
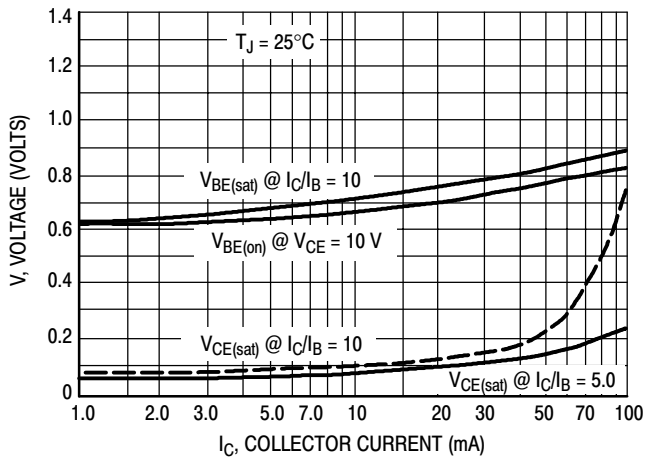


Figure 4. "On" Voltages

2N6515, 2N6517

2N6519, 2N6520

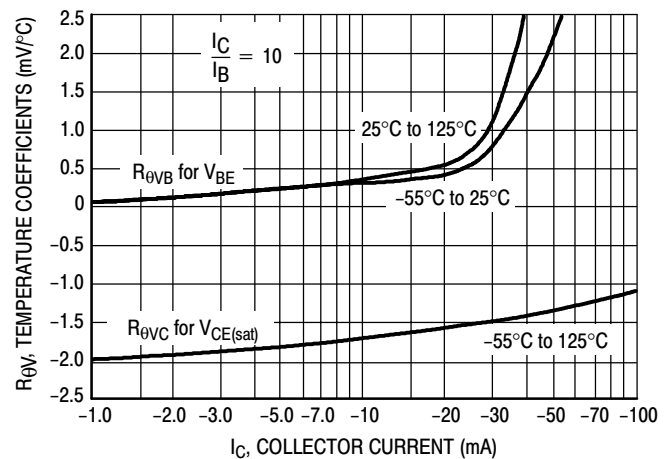
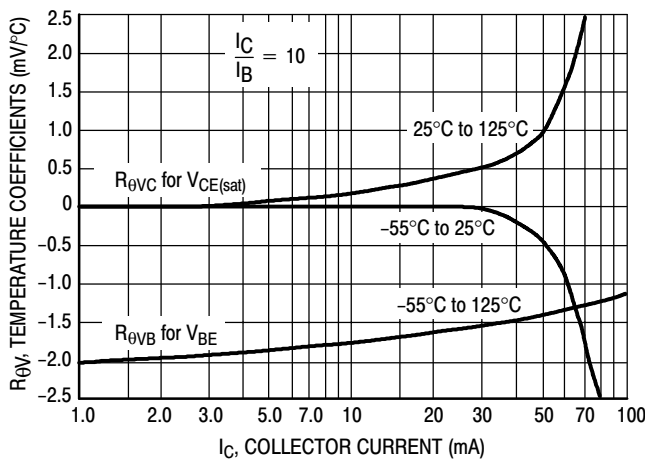


Figure 5. Temperature Coefficients

2N6515, 2N6517

2N6519, 2N6520

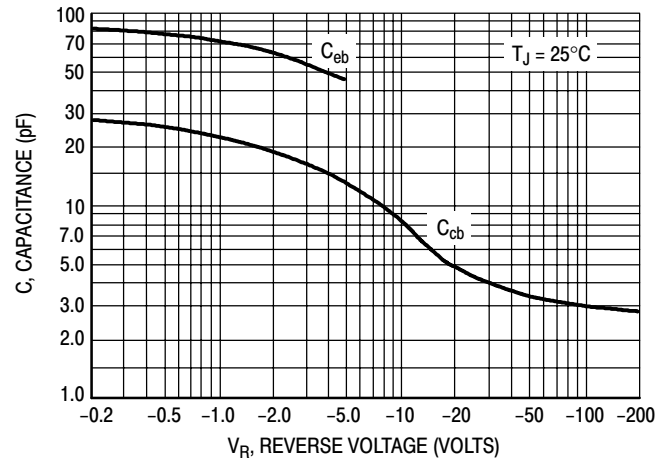
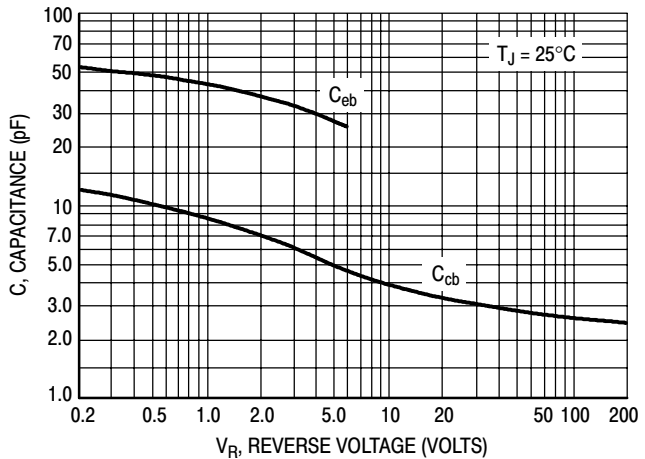


Figure 6. Capacitance

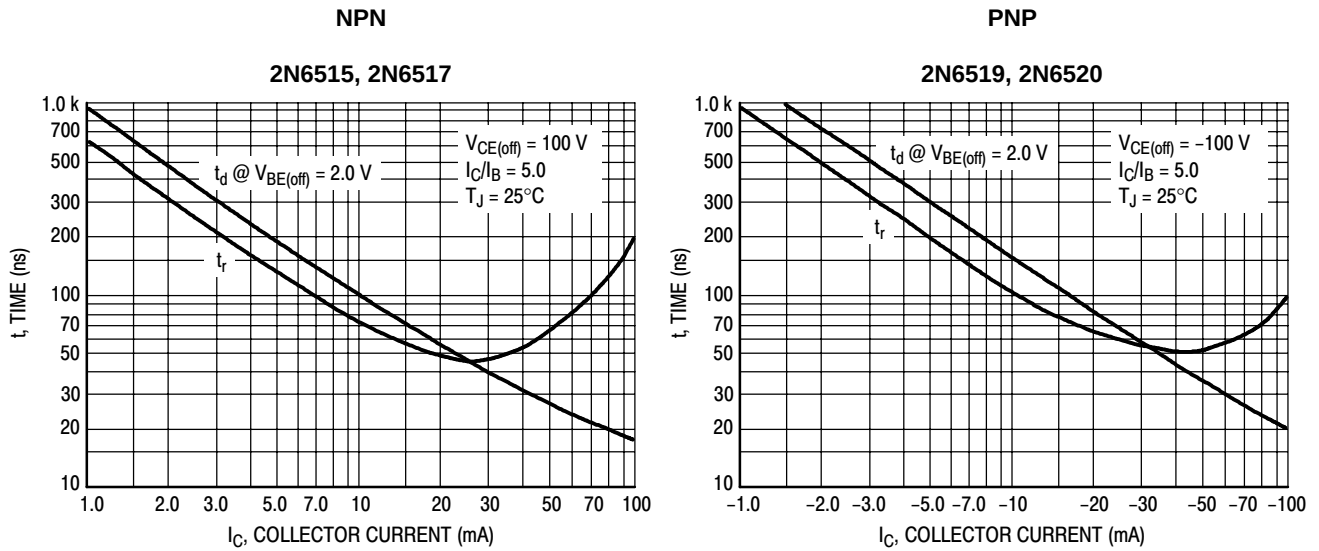


Figure 7. Turn-On Time

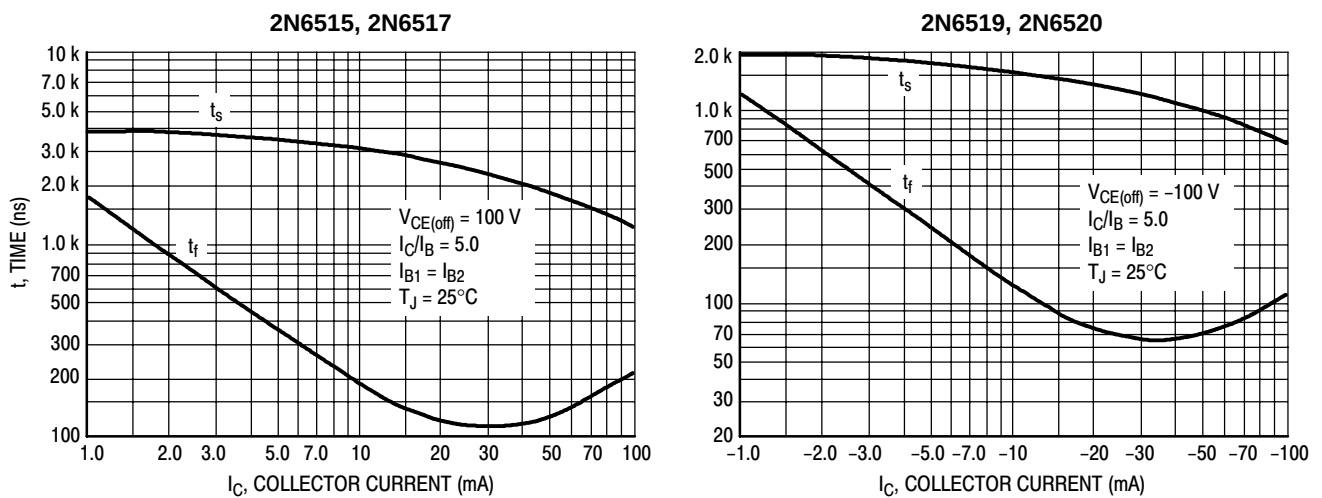


Figure 8. Turn-Off Time