



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

Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Through Hole Package
- 150 C Junction Temperature
- Voltage and Current are negative for PNP transistors
- Halogen free available upon request by adding suffix "-HF"

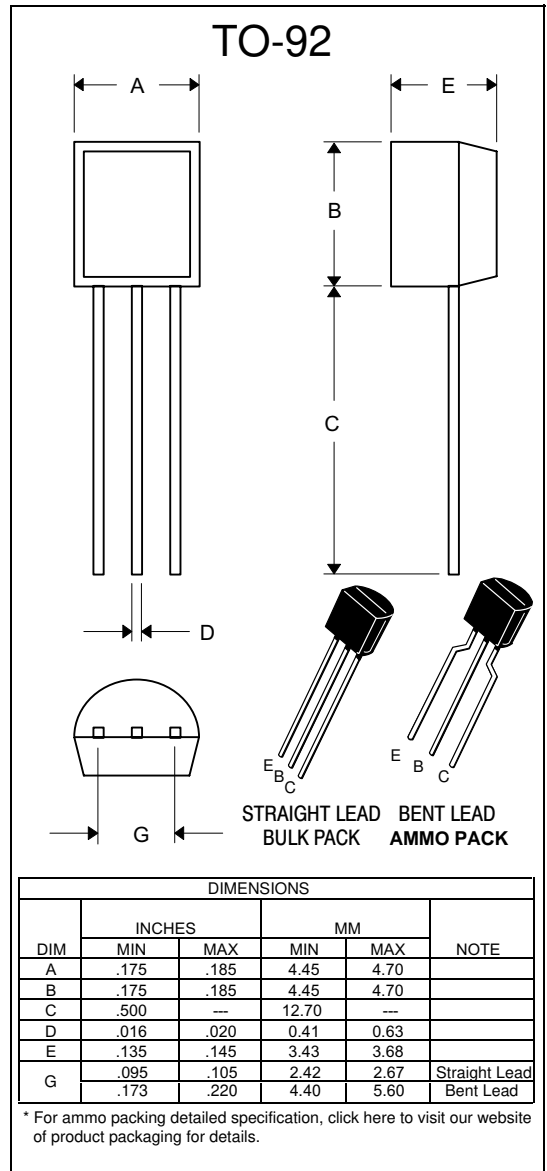
Mechanical Data

- 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	0.625 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



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

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

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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⁾ ($I_C = 10 \text{ mAdc}$, $V_{CE} = 20 \text{ Vdc}$, $f = 20 \text{ MHz}$)	f_T	40	200	MHz
Collector-Base Capacitance ($V_{CB} = 20 \text{ Vdc}$, $I_E = 0$, $f = 1.0 \text{ MHz}$)	C_{cb}	—	6.0	pF
Emitter-Base Capacitance ($V_{EB} = 0.5 \text{ Vdc}$, $I_C = 0$, $f = 1.0 \text{ MHz}$)	C_{eb}	—	80	pF
			100	
SWITCHING CHARACTERISTICS				
Turn-On Time ($V_{CC} = 100 \text{ Vdc}$, $V_{BE(off)} = 2.0 \text{ Vdc}$, $I_C = 50 \text{ mAdc}$, $I_{B1} = 10 \text{ mAdc}$)	t_{on}	—	200	μs
Turn-Off Time ($V_{CC} = 100 \text{ Vdc}$, $I_C = 50 \text{ mAdc}$, $I_{B1} = I_{B2} = 10 \text{ mAdc}$)	t_{off}	—	3.5	μs

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

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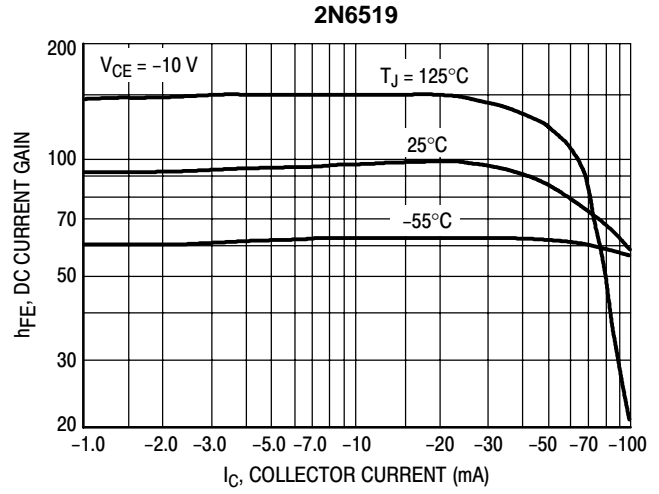
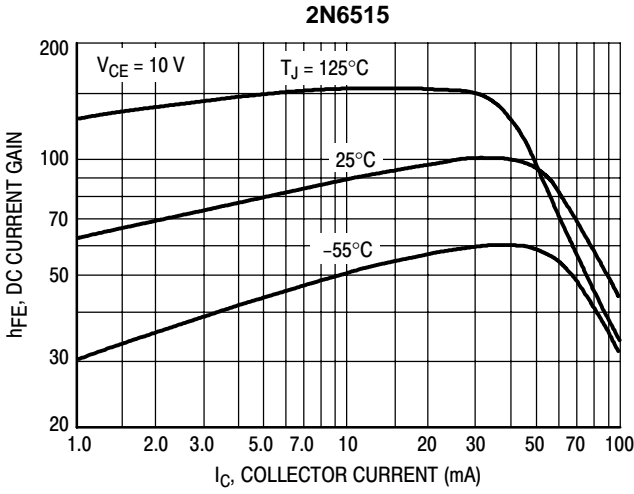


Figure 1. DC Current Gain

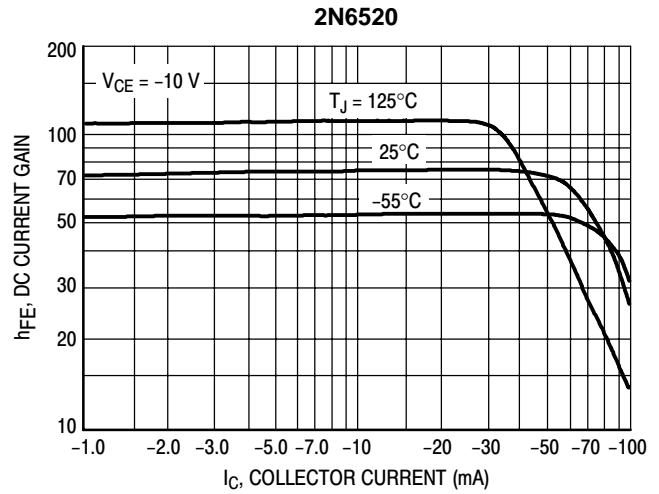
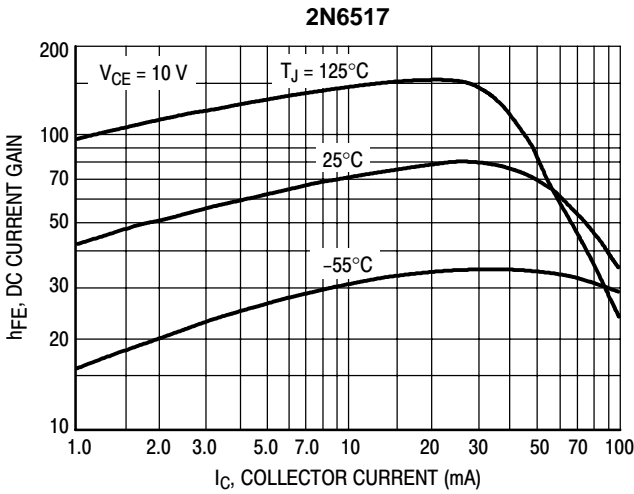


Figure 2. DC Current Gain

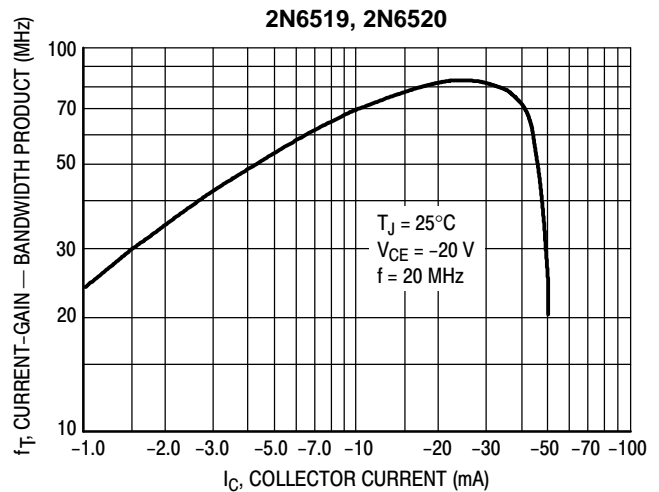
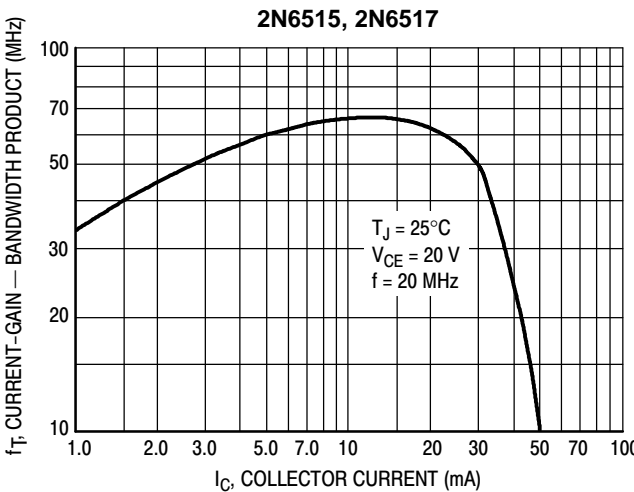


Figure 3. Current-Gain — Bandwidth Product

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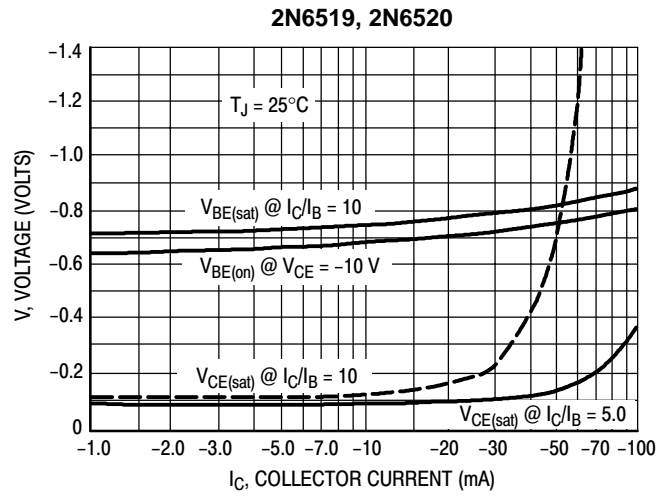
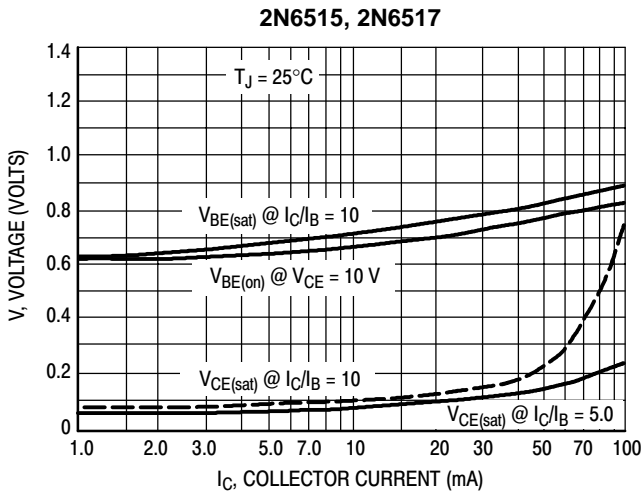


Figure 4. "On" Voltages

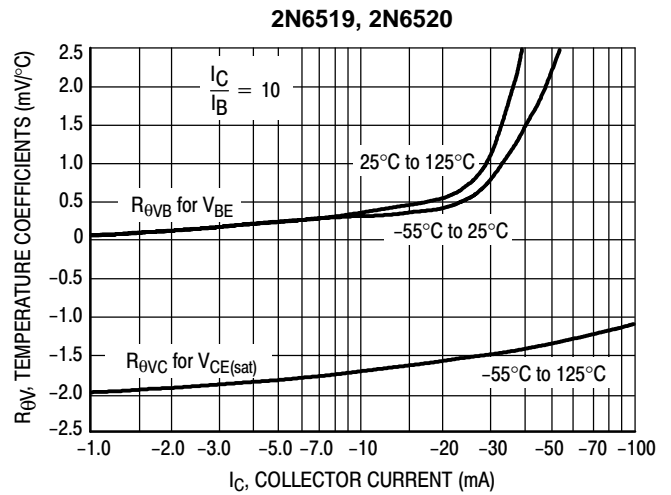
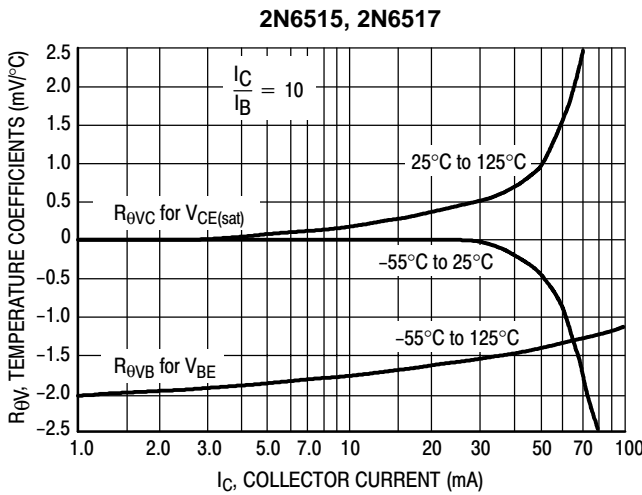


Figure 5. Temperature Coefficients

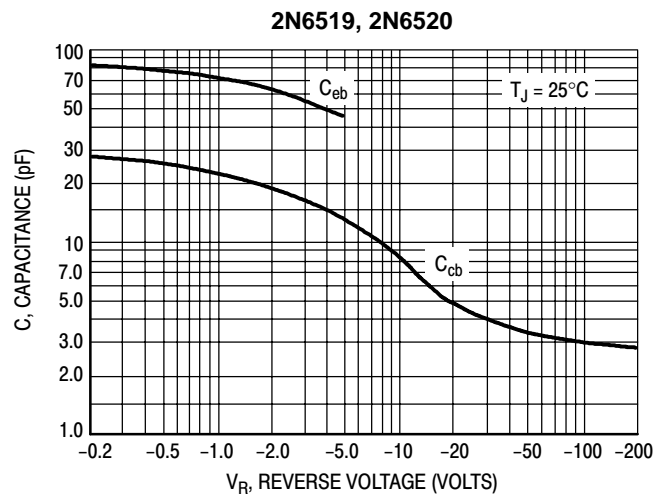
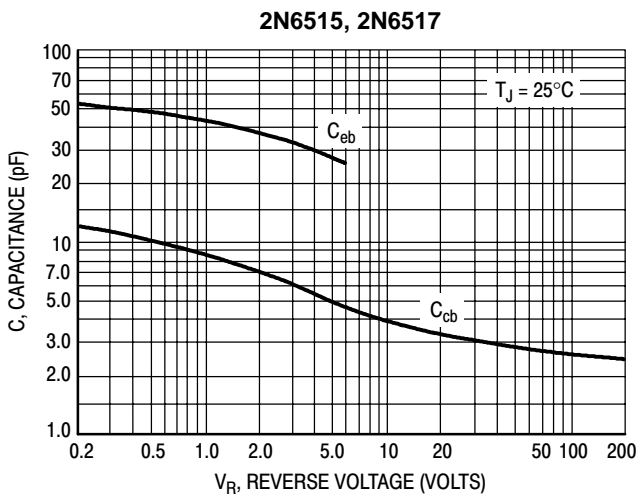


Figure 6. Capacitance

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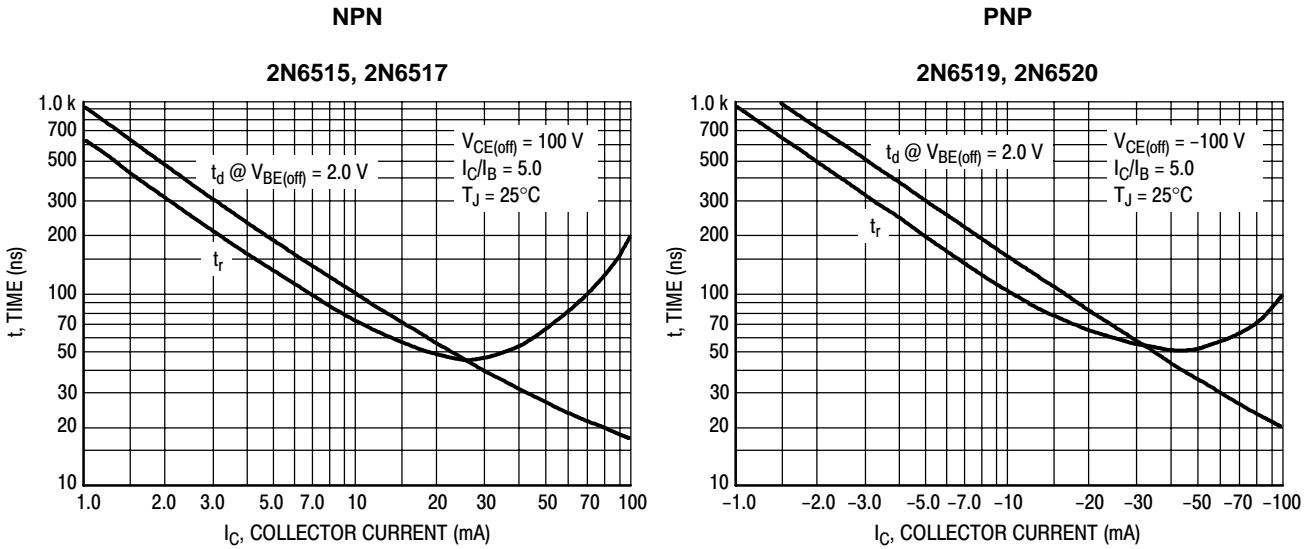


Figure 7. Turn-On Time

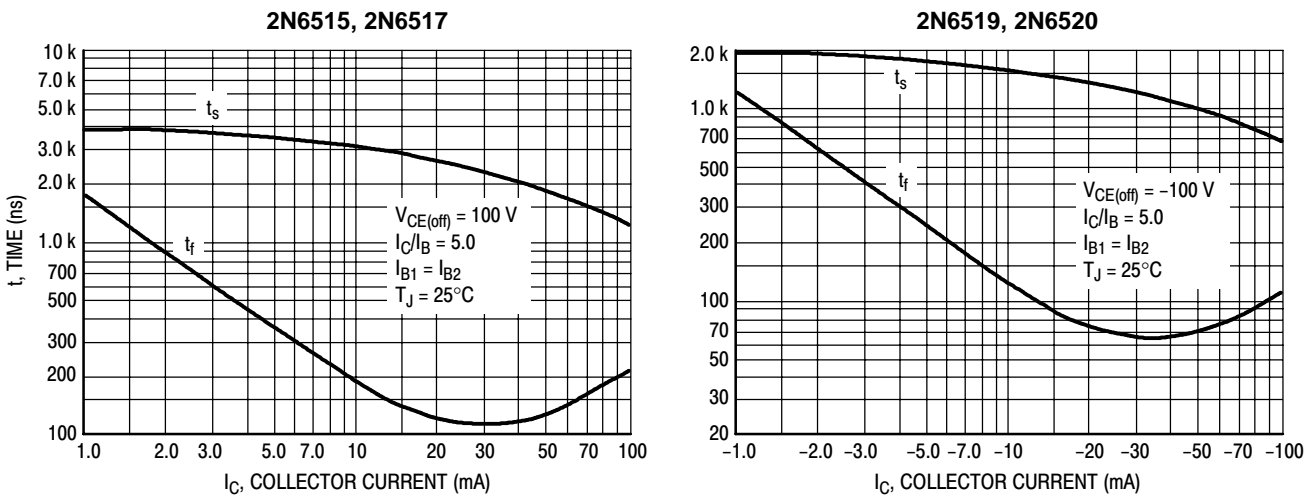


Figure 8. Turn-Off Time



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Ordering Information :

Device	Packing
Part Number-AP	Ammo Packing: 20Kpcs/Carton
Part Number-BP	Bulk: 100Kpcs/Carton

Note : Adding "-HF" suffix for halogen free, eg. Part Number-BP-HF

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