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September 2015

2N6520
PNP Epitaxial Silicon Transistor

Features

- High Voltage Transistor
- Collector-Emitter Voltage: V_{CBO} = -350 V
- Collector Dissipation: P_C (max) = 625 mW
- Complement to 2N6517

TO-92
1. Emitter
2. Base
3. Collector

Straight Lead Bulk Packing | **Bent Lead Tape & Reel Ammo Packing**

Ordering Information

Part Number	Top Mark	Package	Packing Method
2N6520TA	2N6520	TO-92 3L	Ammo

Absolute Maximum Ratings

Stresses exceeding the absolute maximum ratings may damage the device. The device may not function or be operable above the recommended operating conditions and stressing the parts to these levels is not recommended. In addition, extended exposure to stresses above the recommended operating conditions may affect device reliability. The absolute maximum ratings are stress ratings only. Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Value	Unit
V_{CBO}	Collector-Base Voltage	-350	V
V_{CEO}	Collector-Emitter Voltage	-350	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-500	mA
I_B	Base Current	-250	mA
T_J	Junction Temperature	150	°C
T_{STG}	Storage Temperature	-55 to 150	°C

Thermal Characteristics[1]

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Max.	Unit
P_C	Collector Power Dissipation	625	mW
	Derate Above 25°C	5.0	mW/°C
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	200	°C/W

Note:

1. PCB size: FR-4, 76 mm x 114 mm x 1.57 mm (3.0 inch x 4.5 inch x 0.062 inch) with minimum land pattern size.

Electrical Characteristics

Values are at T_A = 25°C unless otherwise noted.

Symbol	Parameter	Conditions	Min.	Max.	Unit
BV_{CBO}	Collector-Base Breakdown Voltage	I_C = -100 μA, I_E = 0	-350		V
BV_{CEO}	Collector-Emitter Breakdown Voltage[2]	I_C = -1 mA, I_B = 0	-350		V
BV_{EBO}	Emitter-Base Breakdown Voltage	I_E = -10 μA, I_C = 0	-5		V
I_{CBO}	Collector Cut-Off Current	V_{CB} = -250 V, I_E = 0		-50	nA
I_{EBO}	Emitter Cut-Off Current	V_{EB} = -4 V, I_C = 0		-50	nA
h_{FE}	DC Current Gain[2]	V_{CE} = -10 V, I_C = -1 mA	20		
		V_{CE} = -10 V, I_C = -10 mA	30		
		V_{CE} = -10 V, I_C = -30 mA	30	200	
		V_{CE} = -10 V, I_C = -50 mA	20	200	
		V_{CE} = -10 V, I_C = -100 mA	15		
V_{CE}(sat)	Collector-Emitter Saturation Voltage	I_C = -10 mA, I_B = -1 mA		-0.30	V
		I_C = -20 mA, I_B = -2 mA		-0.35	
		I_C = -30 mA, I_B = -3 mA		-0.50	
		I_C = -50 mA, I_B = -5 mA		-1.00	
V_{BE}(sat)	Base-Emitter Saturation Voltage	I_C = -10 mA, I_B = -1 mA		-0.75	V
		I_C = -20 mA, I_B = -2 mA		-0.85	
		I_C = -30 mA, I_B = -3 mA		-0.90	
V_{BE}(on)	Base-Emitter On Voltage	V_{CE} = -10 V, I_C = -100 mA		-2	V
f_T	Current Gain Bandwidth Product[2]	V_{CE} = -20 V, I_C = -10 mA, f = 20 MHz	40	200	MHz
C_{ob}	Output Capacitance	V_{CB} = -20 V, I_E = 0, f = 1 MHz		6	pF
C_{EB}	Emitter-Base Capacitance	V_{EB} = -0.5 V, I_C = 0, f = 1 MHz		100	pF
t_{ON}	Turn-On Time	V_{BE}(off) = -2 V, V_{CC} = -100 V, I_C = -50 mA, I_{B1} = -10 mA		200	ns
t_{OFF}	Turn-Off Time	V_{CC} = -100 V, I_C = -50 mA, I_{B1} = I_{B2} = -10 mA		3.5	ns

Note:

2. Pulse test: pulse width ≤ 300 μs, duty cycle ≤ 2%

Typical Performance Characteristics

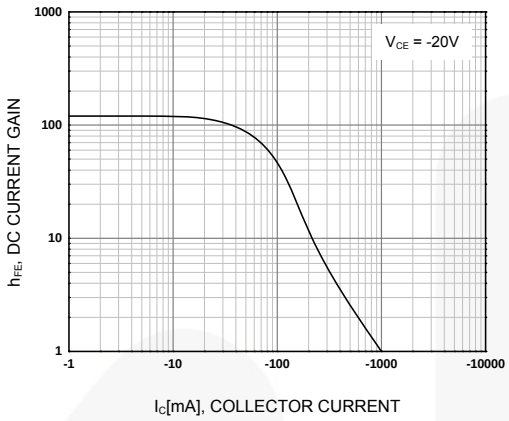

Figure 1. DC Current Gain

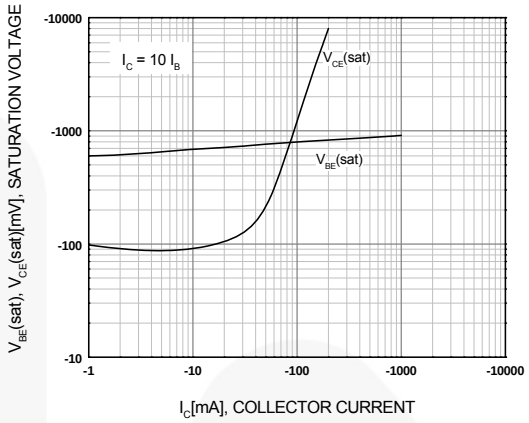

Figure 2. Base-Emitter Saturation Voltage and Collector-Emitter Saturation Voltage

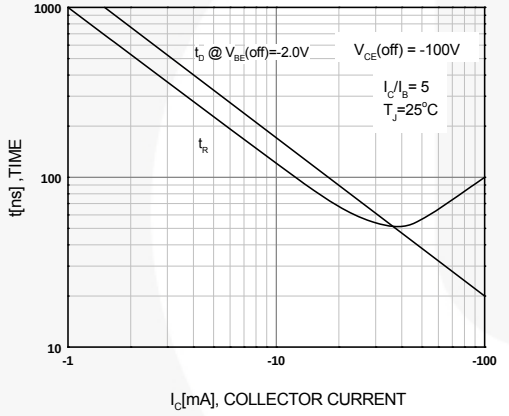

Figure 3. Turn-On Time

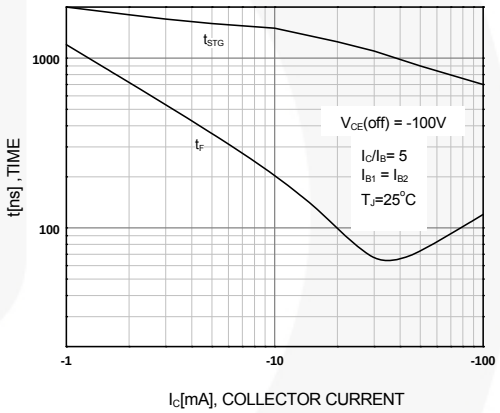

Figure 4. Turn-Off Time

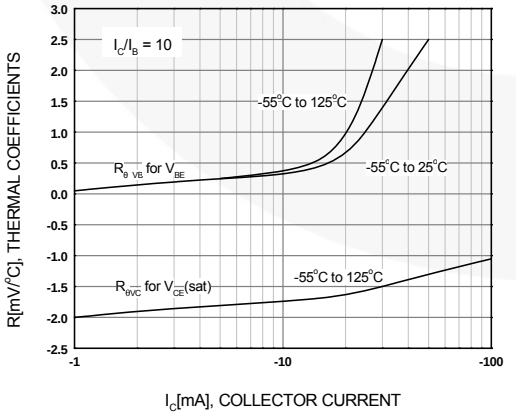

Figure 5. Temperature Coefficients

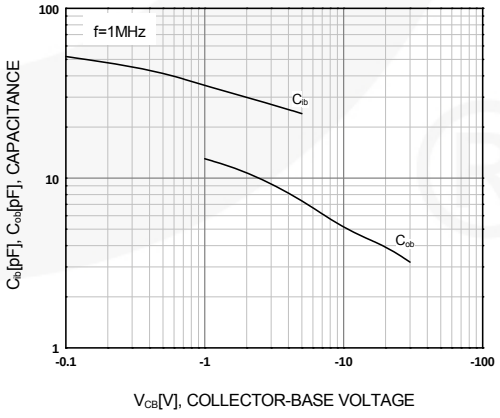

Figure 6. Capacitance

Typical Performance Characteristics (Continued)

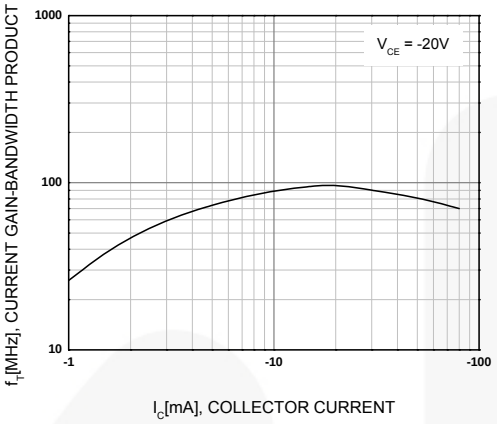

Figure 7. Current Gain Bandwidth Product

Physical Dimensions

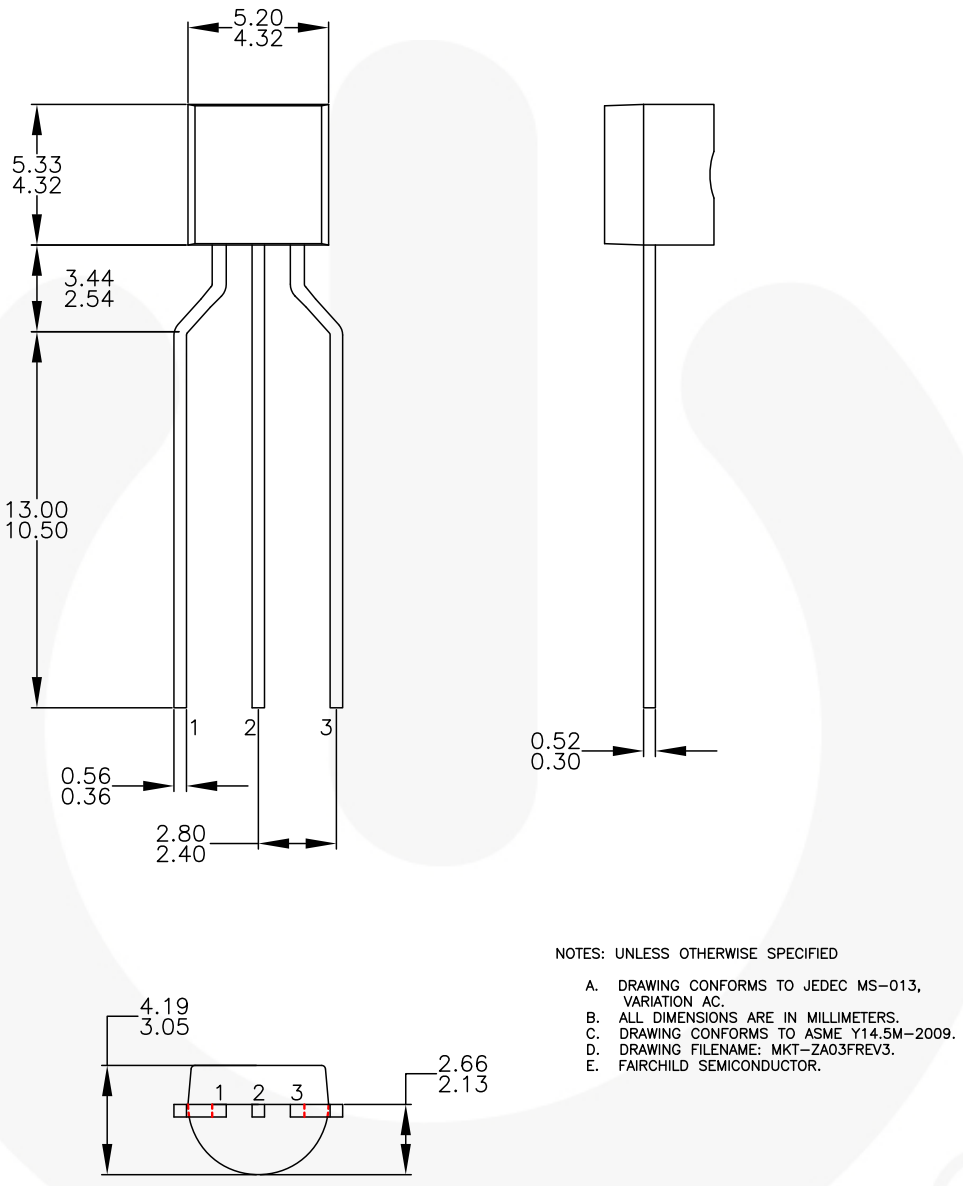

Figure 8. 3-Lead, TO-92, Molded, 0.2 In Line Spacing Lead Form, Ammo Type

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Preliminary	First Production	Datasheet contains preliminary data; supplementary data will be published at a later date. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve design.
No Identification Needed	Full Production	Datasheet contains final specifications. Fairchild Semiconductor reserves the right to make changes at any time without notice to improve the design.
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