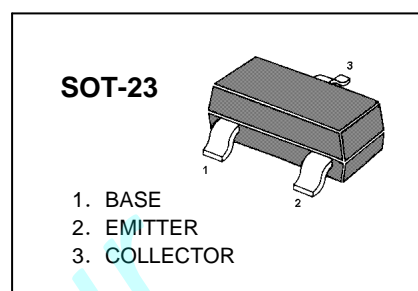


MMBT6520 PNP High Voltage Transistor

■ Features

- PNP Silicon
- High Voltage Transistor

Marking: 2Z



Absolute Maximum Ratings Ta = 25

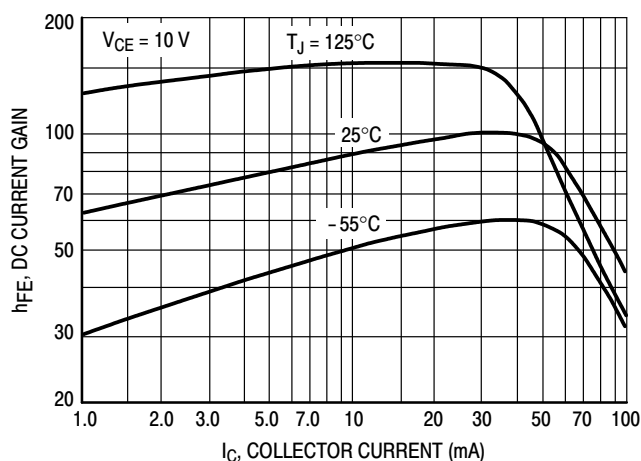
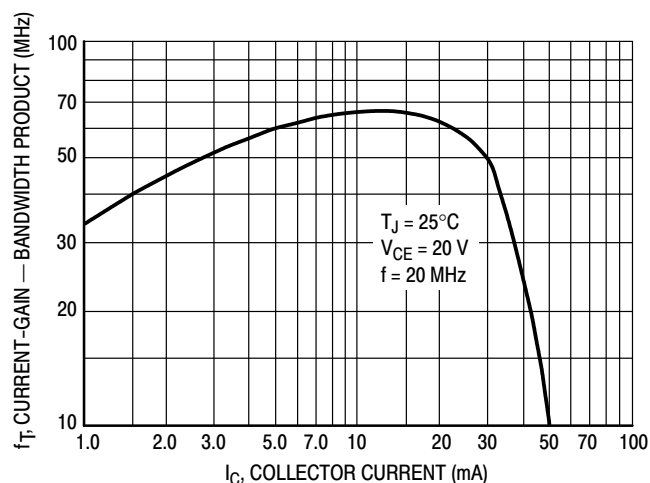
Parameter	Symbol	Rating	Unit
Collector-emitter voltage	V _{CEO}	-350	V
Collector-base voltage	V _{CB0}	-350	V
Emitter-base voltage	V _{EB0}	-5	V
Base current	I _B	-250	mA
Collector current-continuous	I _C	-500	mA
Total device dissipation FR-5 board *1 @TA = 25°C derate above 25°C	P _D	225 1.8	mW mW/°C
Thermal resistance, junction-to-ambient	R _{θJA}	556	°C/W
Total device dissipation alumina substrate*2 @TA = 25°C derate above 25°C	P _D	300 2.4	mW mW/°C
Thermal resistance, junction-to-ambient	R _{θJA}	417	°C/W
Junction and storage temperature	T _J , T _{stg}	-55 to +150	°C

* 1. FR-5 = 1.0 X 0.75 X 0.062 in.

* 2. Alumina = 0.4 X 0.3 X 0.024 in. 99.5% alumina.

Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Testconditions	Min	Typ	Max	Unit
Collector-emitter breakdown voltage	$V_{(BR)CE0}$	$I_C = -1\text{ mA}, I_B = 0$	-350			V
Collector-base breakdown voltage	$V_{(BR)CB0}$	$I_C = -100\ \mu\text{A}, I_E = 0$	-350			
Emitter-base breakdown voltage	$V_{(BR)EB0}$	$I_E = -10\ \mu\text{A}, I_C = 0$	-5			
Collector cutoff current	I_{CE0}	$V_{CB} = -250\text{ V}, I_B = 0$			-50	nA
Emitter cutoff current	I_{EBO}	$V_{EB} = -4\text{ V}, I_C$			-50	nA
DC current gain	h_{FE}	$I_C = -1.0\text{ mA}, V_{CE} = -10\text{ V}$	20			
		$I_C = -10\text{ mA}, V_{CE} = -10\text{ V}$	30			
		$I_C = -30\text{ mA}, V_{CE} = -10\text{ V}$	30		200	
		$I_C = -50\text{ mA}, V_{CE} = -10\text{ V}$	20		200	
		$I_C = -100\text{ mA}, V_{CE} = -10\text{ V}$	15			
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$			-0.3	V
		$I_C = -20\text{ mA}, I_B = -2\text{ mA}$			-0.35	V
		$I_C = -30\text{ mA}, I_B = -3\text{ mA}$			-0.5	V
		$I_C = -50\text{ mA}, I_B = -5\text{ mA}$			-1	V
Base-emitter saturation voltage	$V_{BE(sat)}$	$I_C = -10\text{ mA}, I_B = -1\text{ mA}$			-0.75	V
		$I_C = -20\text{ mA}, I_B = -2\text{ mA}$			-0.85	V
		$I_C = -30\text{ mA}, I_B = -3\text{ mA}$			-0.9	V
Base-emitter on voltage	$V_{BE(on)}$	$I_C = -100\text{ mA}, V_{CE} = -10\text{ V}$			-2	V
Transition frequency	f_T	$I_C = -10\text{ mA}, V_{CE} = -20\text{ V}, f = 20\text{ MHz}$	40		200	MHz
Collector-base capacitance	C_{cb}	$V_{CB} = -20\text{ V}, f = 1\text{ MHz}$			6	pF
Emitter-base capacitance	C_{eb}	$V_{EB} = -0.5\text{ V}, f = 1\text{ MHz}$			100	pF

Typical Characteristics

Figure 1. DC Current Gain

Figure 2. Current-Gain — Bandwidth Product

Typical Characteristics

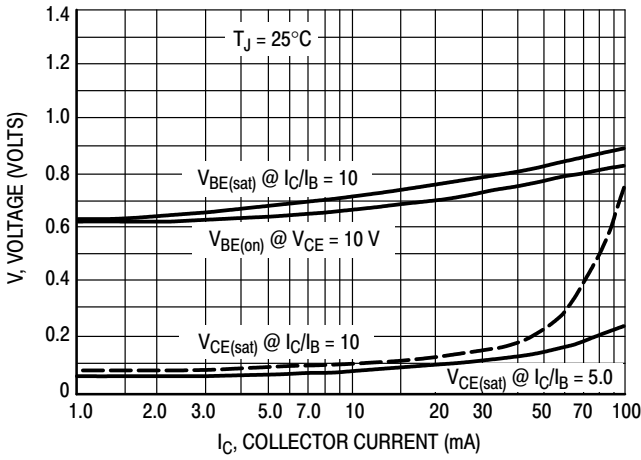


Figure 3. "On" Voltages

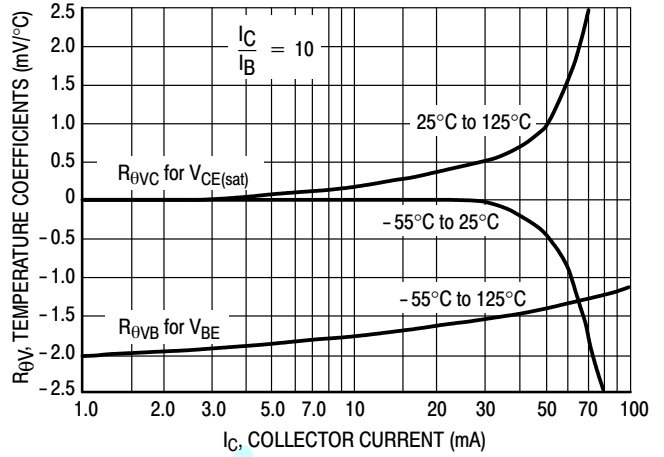


Figure 4. Temperature Coefficients

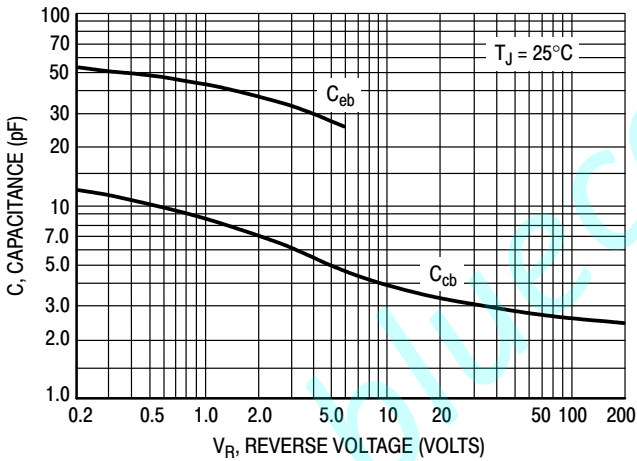


Figure 5. Capacitance

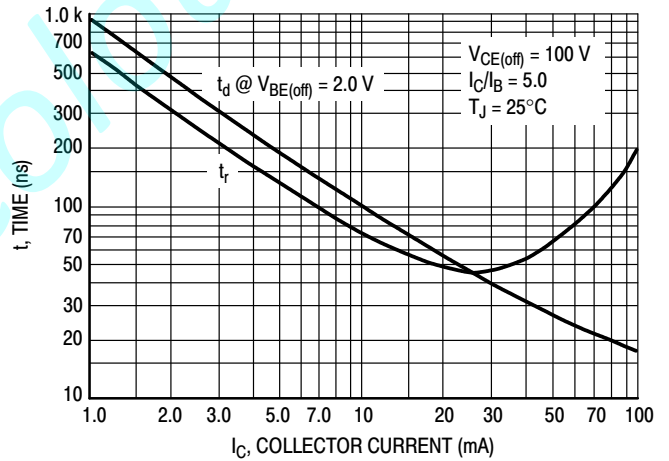


Figure 6. Turn-On Time

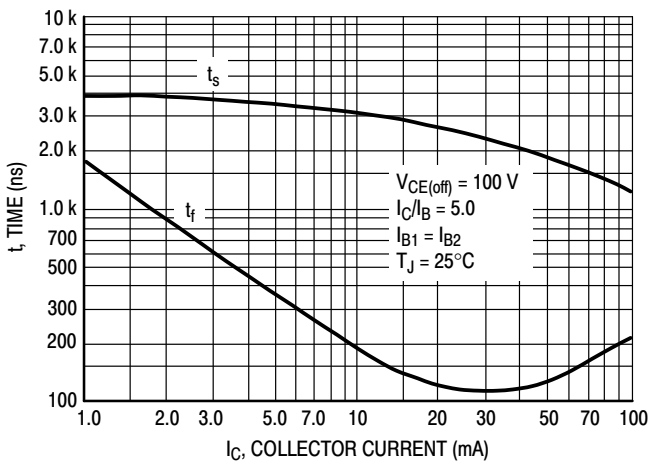


Figure 7. Turn-Off Time

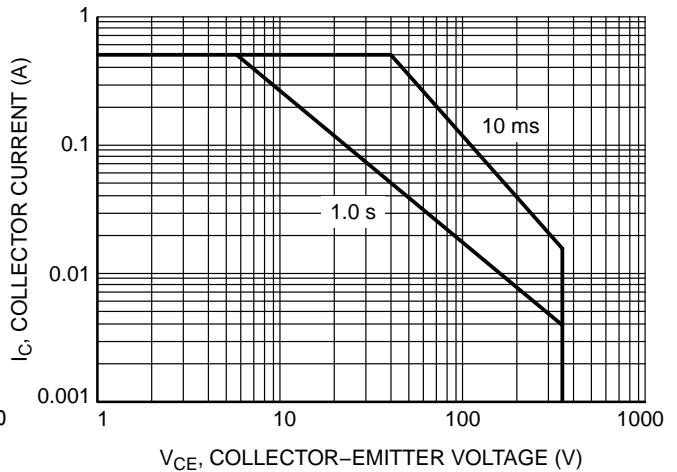


Figure 8. Safe Operating Area

Typical Characteristics

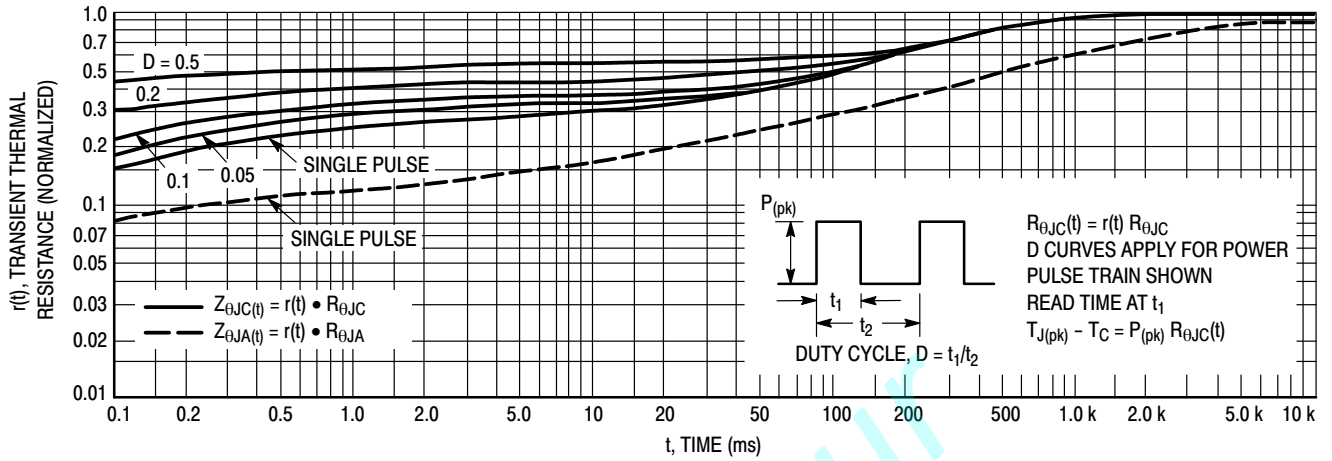


Figure 9. Thermal Response

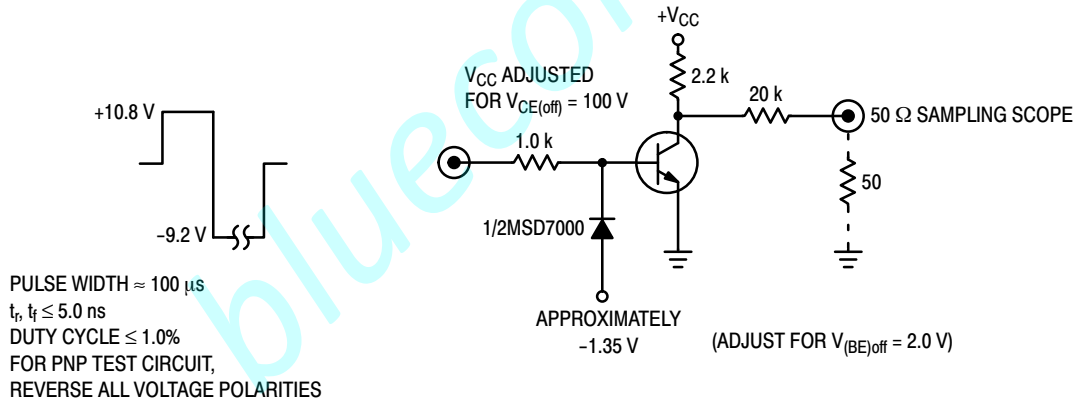
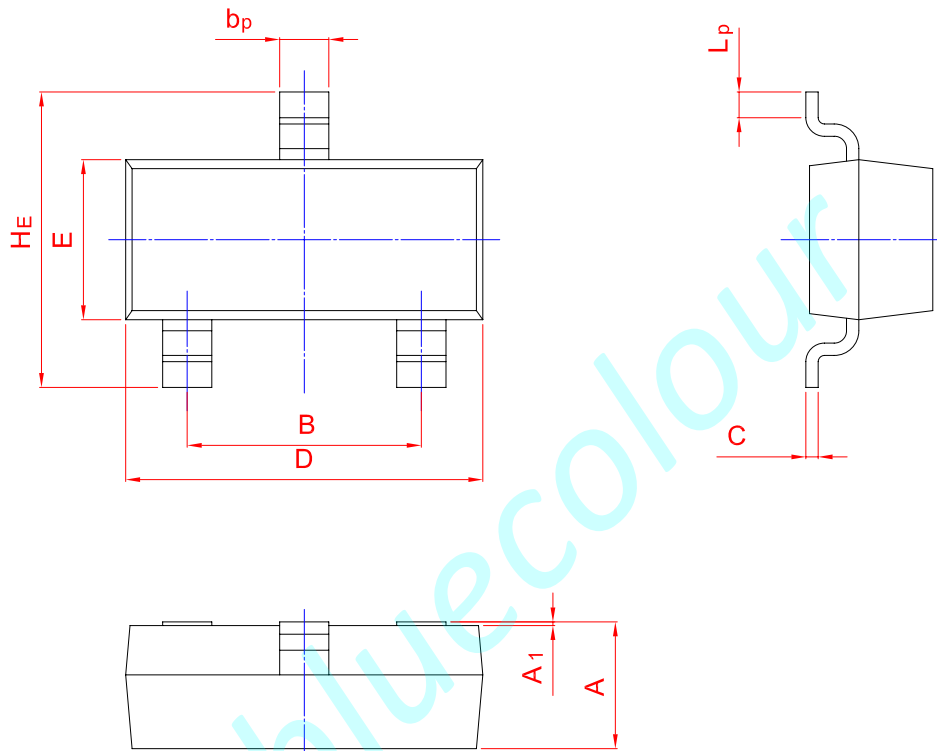
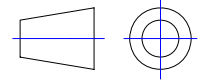


Figure 10. Switching Time Test Circuit

PACKAGE OUTLINE

Plastic surface mounted package; 3 leads

SOT-23



UNIT	A	B	bp	C	D	E	HE	A1	Lp
mm	1.40	2.04	0.50	0.19	3.10	1.65	3.00	0.100	0.50
	0.95	1.78	0.35	0.08	2.70	1.20	2.20	0.013	0.20