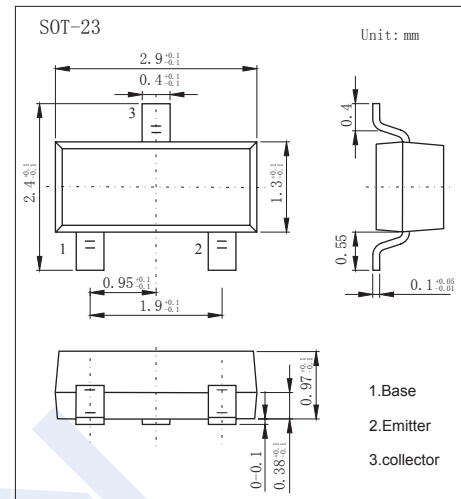
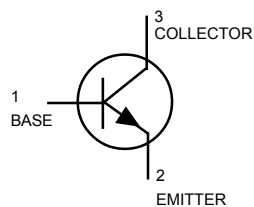


NPN Transistors

MMBT6517 (KMBT6517)

■ Features

- Collector Current Capability $I_C=0.5A$
- Collector Emitter Voltage $V_{CE0}=350V$



■ Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter	Symbol	Rating	Unit
Collector - Base Voltage	V_{CB0}	350	V
Collector - Emitter Voltage	V_{CE0}	350	
Emitter - Base Voltage	V_{EB0}	6	
Collector Current - Continuous	I_C	500	mA
Base Current	I_B	250	
Collector Power Dissipation (Note.1)	P_C	225	mW
Derate above 25°C		1.8	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	$^\circ\text{C}/\text{W}$
Collector Power Dissipation (Note.2)	P_C	300	mW
Derate above 25°C		2.4	mW/ $^\circ\text{C}$
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	$^\circ\text{C}/\text{W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1:FR-5 = 1.0 x 0.75 x 0.062 in.

Note.2:Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.

NPN Transistors

MMBT6517 (KMBT6517)

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Collector- base breakdown voltage	V_{CBO}	$I_C = 100 \mu\text{A}, I_E = 0$	350			V
Collector- emitter breakdown voltage	V_{CEO}	$I_C = 1 \text{ mA}, I_B = 0$	350			
Emitter - base breakdown voltage	V_{EBO}	$I_E = 100 \mu\text{A}, I_C = 0$	6			
Collector-base cut-off current	I_{CBO}	$V_{CB} = 250 \text{ V}, I_E = 0$			50	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 5 \text{ V}, I_C = 0$			50	
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	
		$I_C = 30 \text{ mA}, I_B = 3 \text{ mA}$			0.5	
		$I_C = 50 \text{ mA}, I_B = 5 \text{ mA}$			1	
Base - emitter saturation voltage	$V_{BE(sat)}$	$I_C = 10 \text{ mA}, I_B = 1 \text{ mA}$			0.75	
		$I_C = 20 \text{ mA}, I_B = 2 \text{ mA}$			0.85	
		$I_C = 30 \text{ mA}, I_B = 3 \text{ mA}$			0.9	
Base-emitter turn-on voltage	$V_{BE(on)}$	$V_{CE} = 10 \text{ V}, I_C = 100 \text{ mA}$			2	
DC current gain	h_{FE}	$V_{CE} = 10 \text{ V}, I_C = 1 \text{ mA}$	20			
		$V_{CE} = 10 \text{ V}, I_C = 10 \text{ mA}$	30			
		$V_{CE} = 10 \text{ V}, I_C = 30 \text{ mA}$	30		200	
		$V_{CE} = 10 \text{ V}, I_C = 50 \text{ mA}$	20		200	
		$V_{CE} = 10 \text{ V}, I_C = 100 \text{ mA}$	15			
Emitter -base capacitance	C_{eb}	$V_{EB} = 0.5 \text{ V}, f = 1 \text{ MHz}$			80	pF
Collector output capacitance	C_{ob}	$V_{CB} = 20 \text{ V}, f = 1 \text{ MHz}$			6	
Transition frequency	f_T	$V_{CE} = 20 \text{ V}, I_C = 10 \text{ mA}, f = 20 \text{ MHz}$	40		200	MHz

■ Marking

Marking	1Z
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NPN Transistors MMBT6517 (KMBT6517)

■ Typical Characteristics

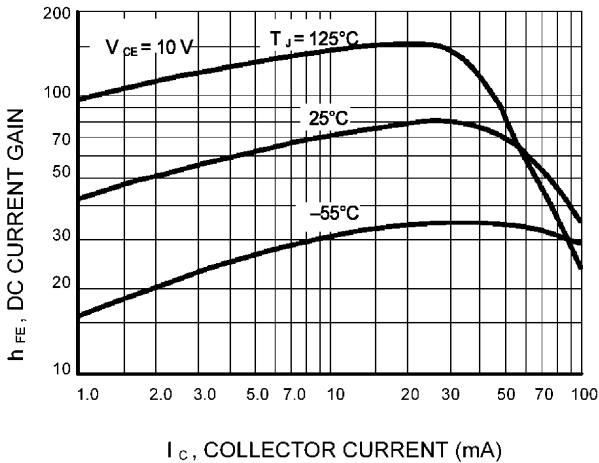


Figure 1. DC Current Gain

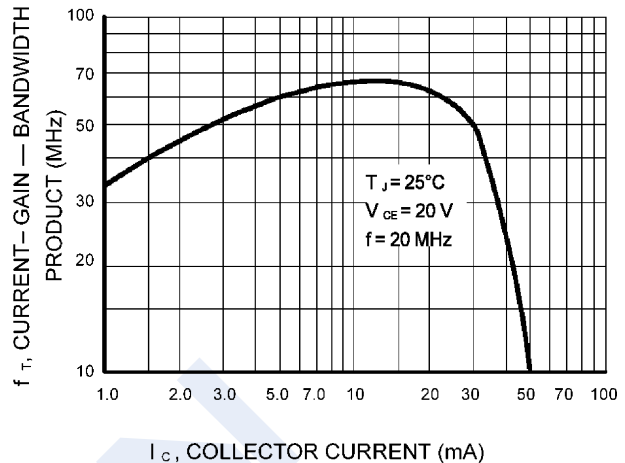


Figure 2. Current-Gain — Bandwidth Product

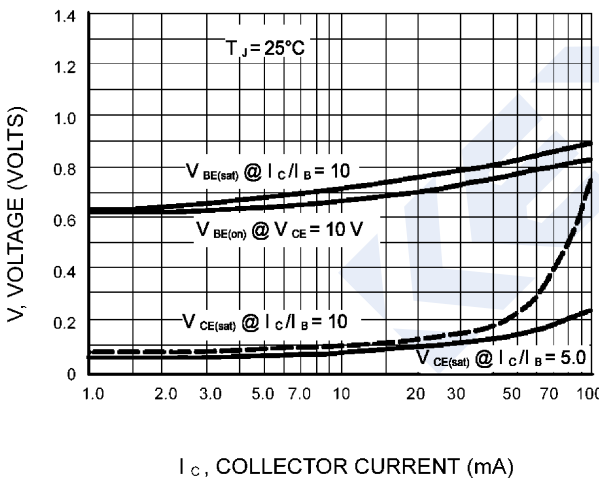


Figure 3. "On" Voltages

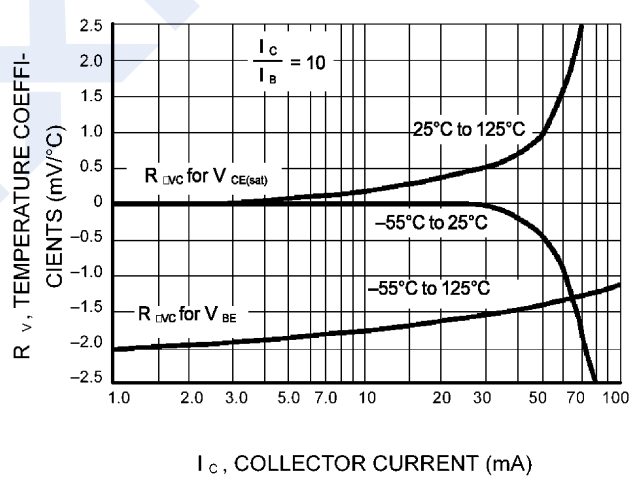


Figure 4. Temperature Coefficients

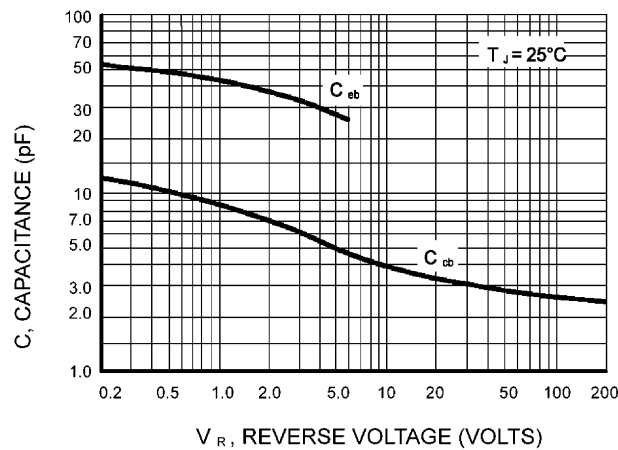
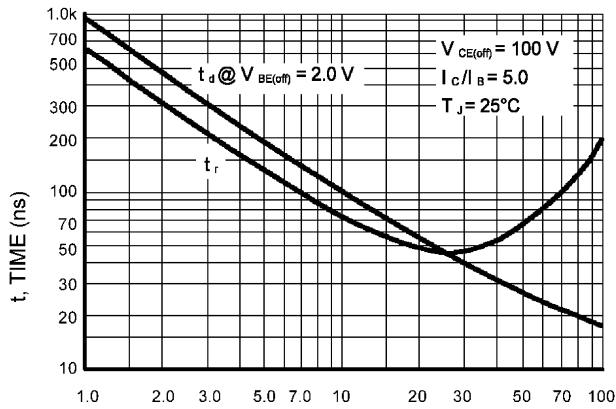


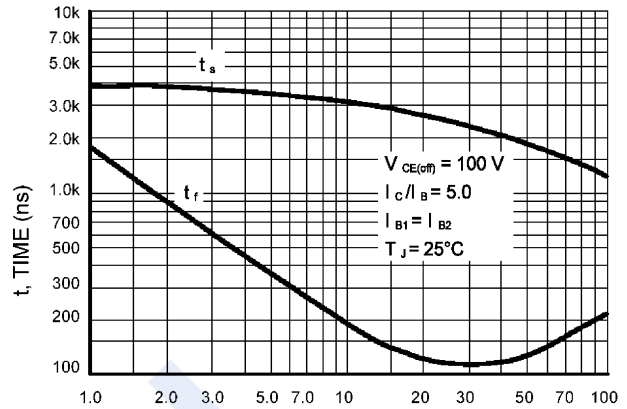
Figure 5. Capacitance

NPN Transistors MMBT6517 (KMBT6517)

■ Typical Characteristics



I_C , COLLECTOR CURRENT (mA)
Figure 6. Turn-On Time



I_C , COLLECTOR CURRENT (mA)
Figure 7. Turn-Off Time

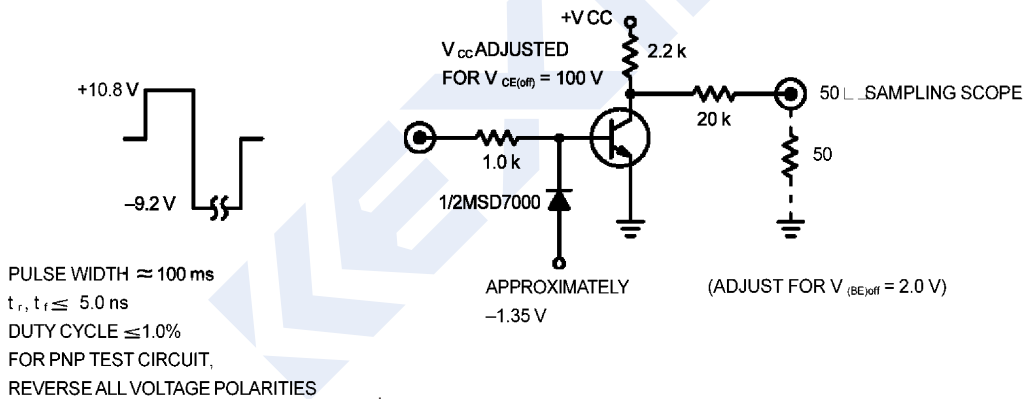


Figure 8. Switching Time Test Circuit

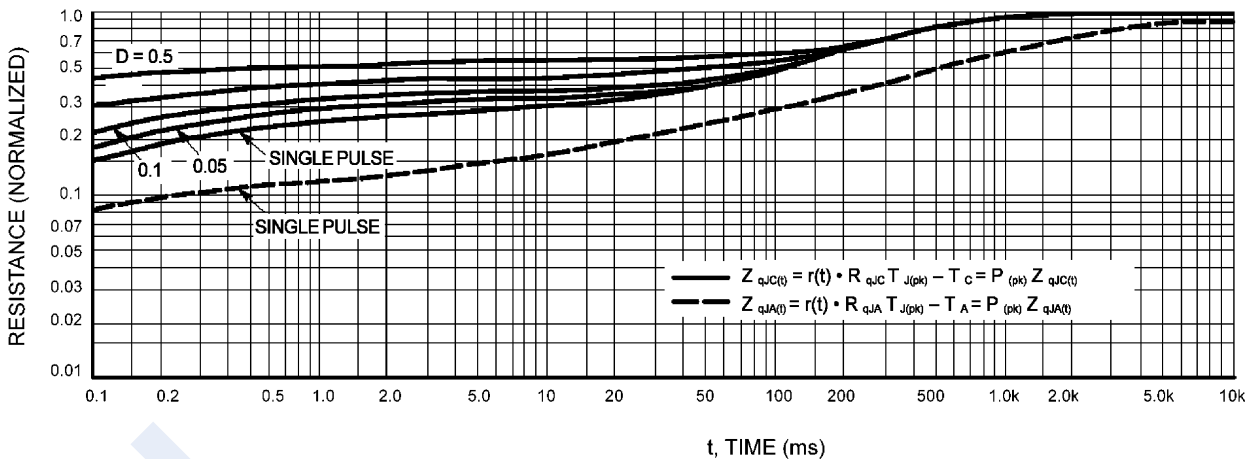


Figure 9. Thermal Response