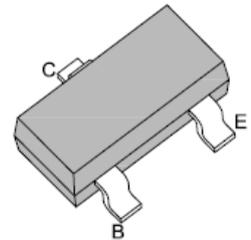
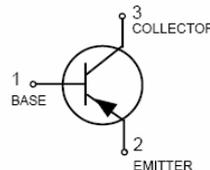


SMD High Voltage Transistor (PNP)

Features

- PNP Silicon Epitaxial Planar Transistor for Switching and Amplifier Applications
- RoHS compliance



Mechanical Data

Case:	SOT-23, Plastic Package
Terminals:	Solderable per MIL-STD-202G, Method 208
Weight:	0.008 gram

SOT-23



Maximum Ratings ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Symbol	Description	MMBT6520	Unit
	Marking Code	2Z	
V_{CEO}	Collector-Emitter Voltage	-350	V
V_{CBO}	Collector-Base Voltage	-350	V
V_{EBO}	Emitter-Base Voltage	-5.0	V
I_B	Base Current	-250	mA
I_C	Collector Current-Continuous	-500	mA

Thermal Characteristics

Symbol	Description	MMBT6520	Unit
P_{tot}	Total Device Dissipation FR-5 Board, (Note 1) T _A = 25°C	225	mW
	Derate above 25°C	1.8	mW/° C
R_{θJA}	Thermal Resistance from Junction to Ambient	556	° C/W
P_{tot}	Total Device Dissipation Alumina Substrate, (Note 2) T _A = 25°C,	300	mW
	Derate above 25°C	2.4	mW/° C
R_{θJA}	Thermal Resistance from Junction to Ambient	417	° C/W
T_J, T_{STG}	Junction and Storage Temperature Range	-55 to +150	° C

SMD High Voltage Transistor (PNP)

MMBT6520

Electrical Characteristics ($T_{Ambient}=25^{\circ}C$ unless noted otherwise)

Off Characteristics

Symbol	Description	MMBT6520		Unit	Conditions
		Min.	Max.		
V(BR)CEO	Collector-Emitter Breakdown Voltage	-350	-	V	$I_C=-1mA$
V(BR)CBO	Collector-Base Breakdown Voltage	-350	-	V	$I_E=-100\mu A$
V(BR)EBO	Emitter-Base Breakdown Voltage	-5.0	-	V	$I_E=-10\mu A$
I_{CBO}	Collector-Base Cut-off Current	-	-50	nA	$V_{CB}=-250V$
I_{EBO}	Emitter-Base Cut-off Current	-	-50	nA	$V_{EB}=-4V$

On Characteristics

Symbol	Description	MMBT6520		Unit	Conditions
		Min.	Max.		
h_{FE}	D.C. Current Gain	20	-		$V_{CE}=-10V, I_C=-1mA$
		30	-		$V_{CE}=-10V, I_C=-10mA$
		30	200		$V_{CE}=-10V, I_C=-30mA$
		20	200		$V_{CE}=-10V, I_C=-50mA$
		15	-		$V_{CE}=-10V, I_C=-100mA$
V_{CE(sat)}	Collector-Emitter Saturation Voltage	-	-0.30	V	$I_C=-10mA, I_B=-1mA$
		-	-0.35	V	$I_C=-20mA, I_B=-2mA$
		-	-0.50	V	$I_C=-30mA, I_B=-3mA$
		-	-0.10	V	$I_C=-50mA, I_B=-5mA$
V_{BE(sat)}	Base-Emitter Saturation Voltage	-	-0.75	V	$I_C=-10mA, I_B=-1mA$
		-	-0.85	V	$I_C=-20mA, I_B=-2mA$
		-	-0.90	V	$I_C=-30mA, I_B=-3mA$
V_{BE(on)}	Base-Emitter On Voltage	-	-2.0	V	$V_{CE}=-10V, I_C=-100mA$

SMD High Voltage Transistor (PNP)

MMBT6520

Small – Signal Characteristics

Symbol	Description	MMBT6520		Unit	Conditions
		Min.	Max.		
f_T	Current Gain-Bandwidth Product	40	200	MHz	V _{CE} =-20V, I _C =-10mA, f=20MHz
C_{CB0}	Collector-Base Capacitance	-	6	pF	V _{CB} =-20V, f=1MHz
C_{EB0}	Emitter-Base Capacitance	-	100	pF	V _{EB} =-0.5V, f=1MHz

Note: 1. FR-5=1.0x0.75x0.062 in.
2. Alumina=0.4x0.3x0.024 in, 99.5% alumina.

Typical Characteristics Curves

Fig.1- DC Current Gain

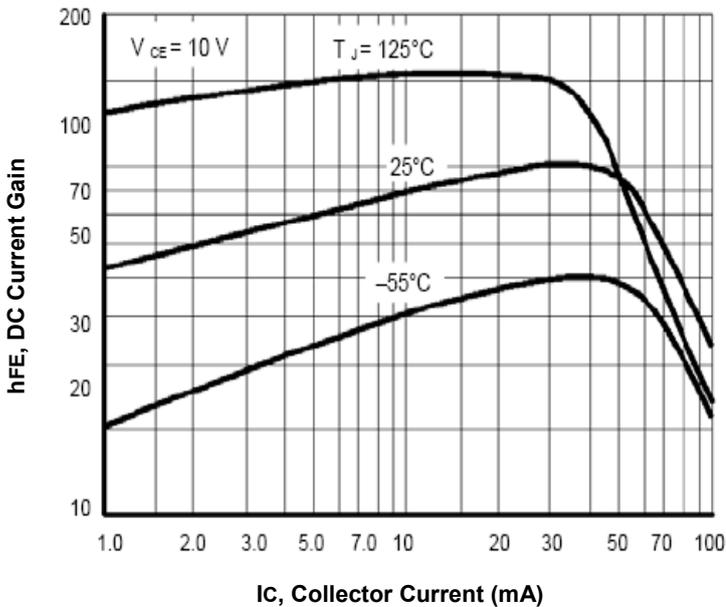
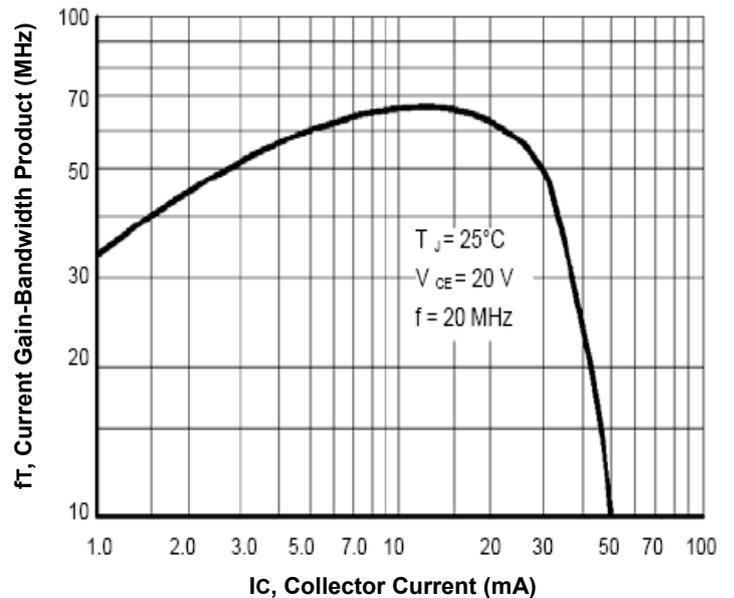


Fig.2- Current Gain-Bandwidth Product



SMD High Voltage Transistor (PNP)

MMBT6520

Fig.3- "ON" Voltages

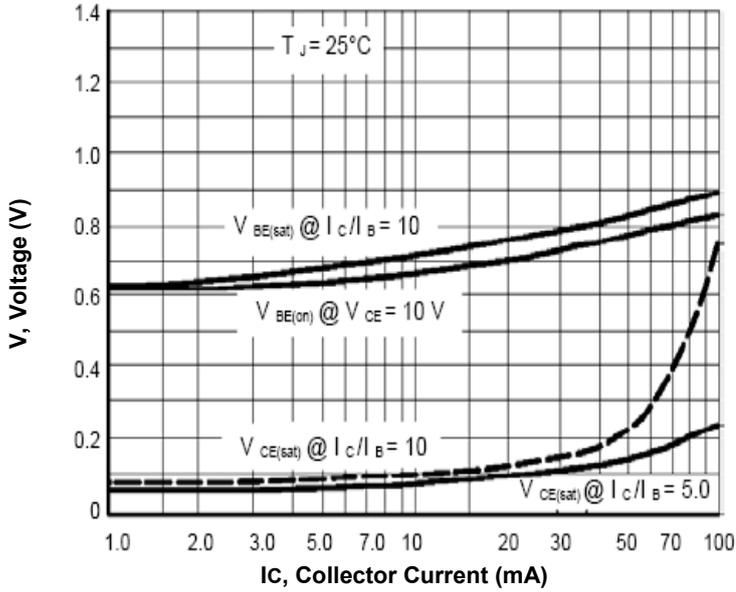


Fig.4- Temperature Coefficient

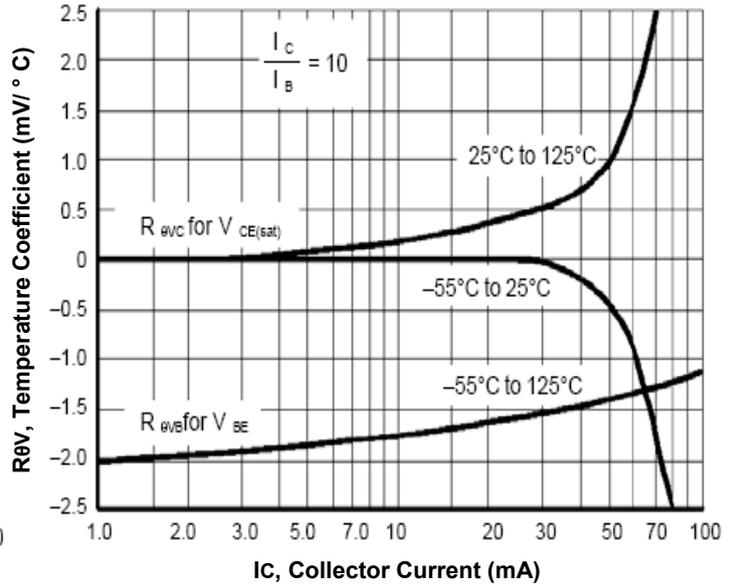


Fig.5- Capacitance

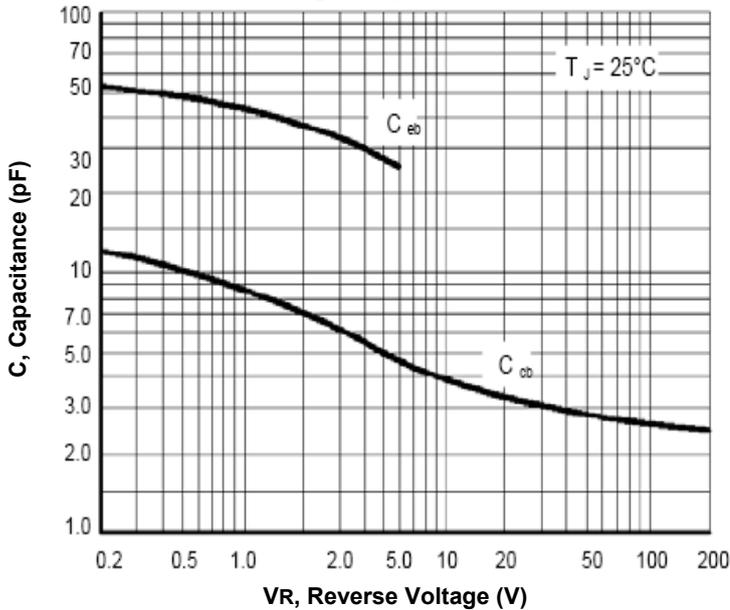
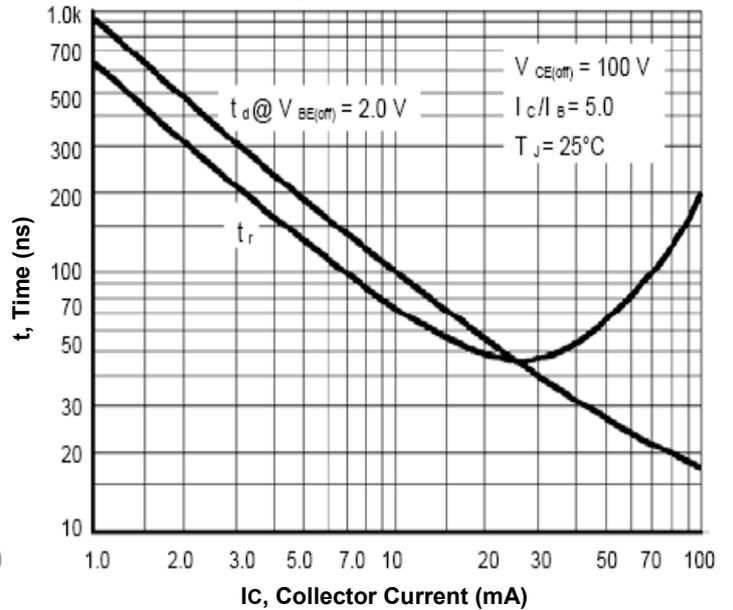


Fig.6- Turn-On Time



SMD High Voltage Transistor (PNP)

MMBT6520

Fig.7- Turn-On Time

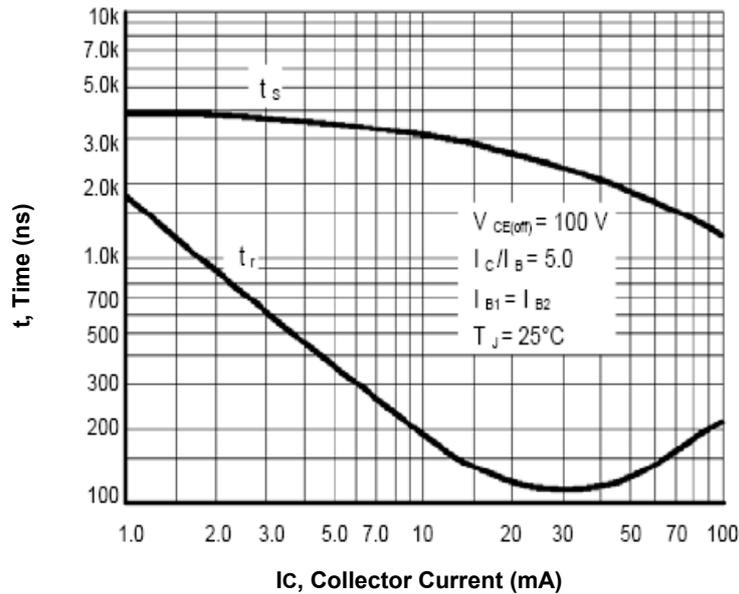
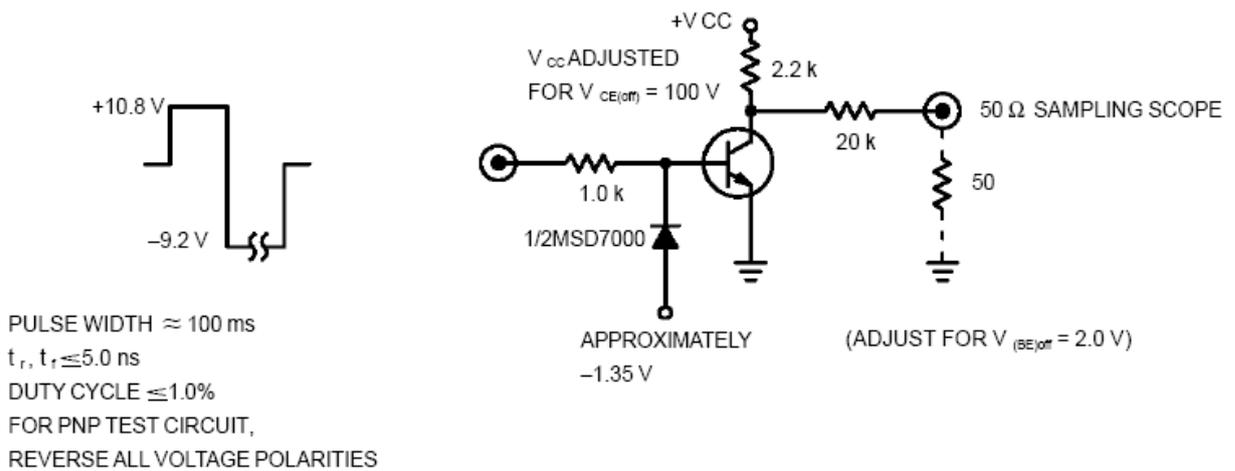


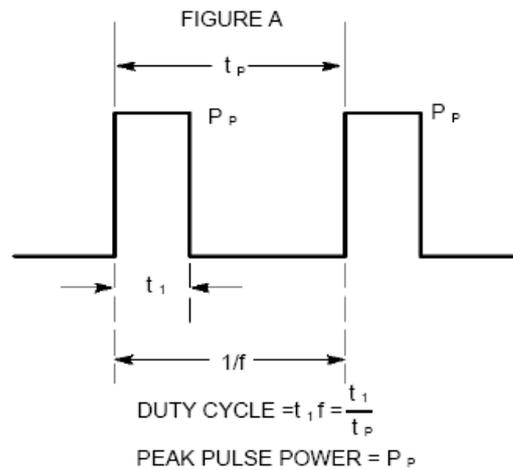
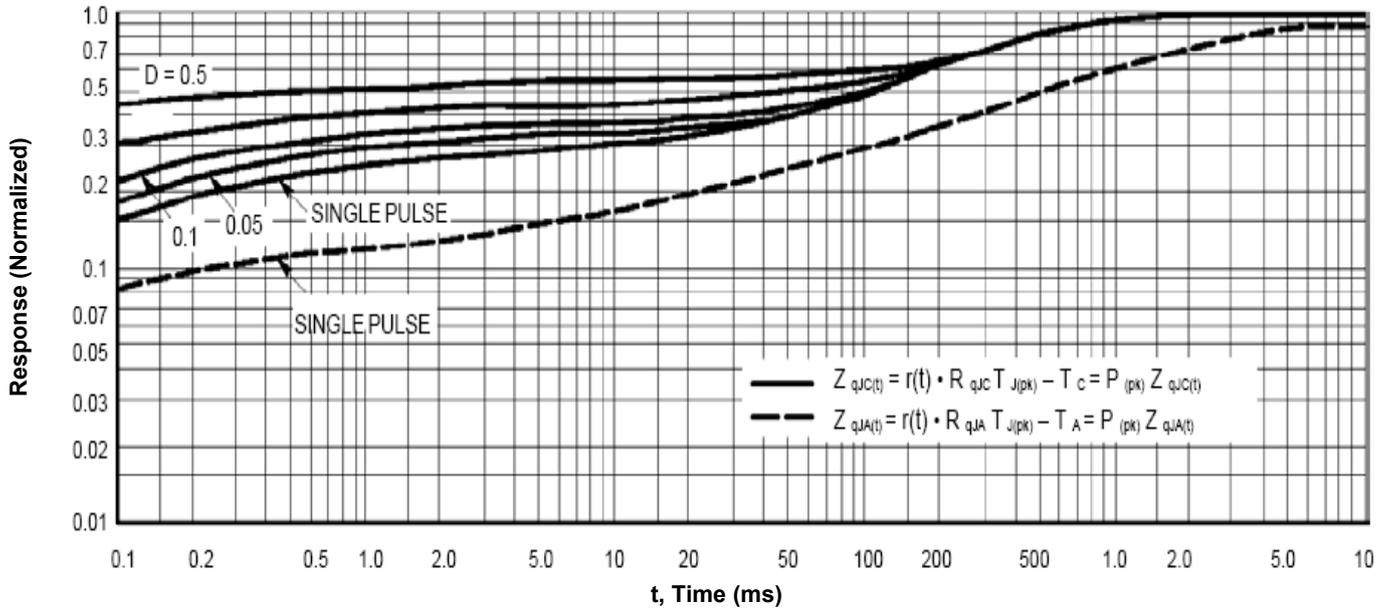
Fig.8-Switching Time Test Circuits



SMD High Voltage Transistor (PNP)

MMBT6520

Fig.9- Thermal Response



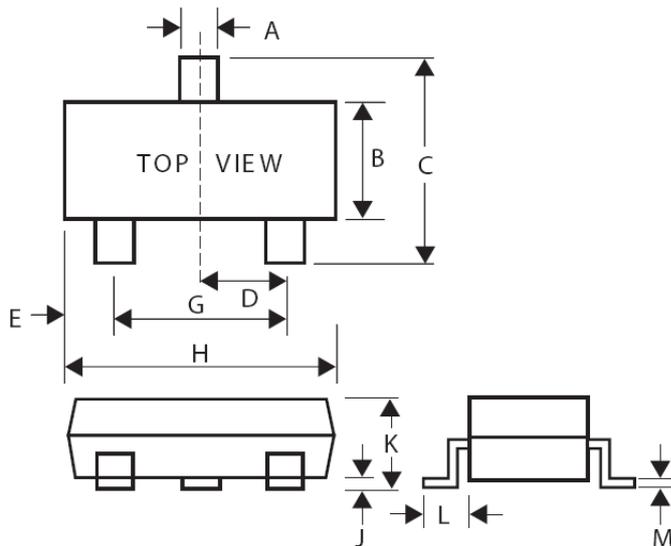
Design Note: Use of Transient Thermal Resistance Data

SMD High Voltage Transistor (PNP)

MMBT6520

Dimensions in mm

SOT-23



Dim	Min	Max
A	0.35	0.51
B	1.19	1.80
C	2.10	3.00
D	0.85	1.05
E	0.46	1.00
G	1.70	2.10
H	2.70	3.10
J	0.01	0.13
K	0.89	1.60
L	0.30	0.61
M	0.076	0.25

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