

# MMBTA92

## PNP Silicon High Voltage Transistor

### Features

- Surface Mount SOT-23 Package
- Capable of 300mWatts of Power Dissipation
- 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
- Marking: 2D
- Halogen free available upon request by adding suffix "-HF"

### Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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#### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage* ( $I_C=-1.0mA_{dc}$ , $I_B=0$ )	-300		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=-100\mu A_{dc}$ , $I_E=0$ )	-300		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=-100\mu A_{dc}$ , $I_C=0$ )	-5		Vdc
$I_C$	Collector Current-Continuous	-300		mA <sub>dc</sub>
$I_{CBO}$	Collector Cutoff Current ( $V_{CB}=-200V_{dc}$ , $I_E=0$ )		-250	nA <sub>dc</sub>
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=-5V_{dc}$ , $I_C=0$ )		-100	nA <sub>dc</sub>

#### ON CHARACTERISTICS

$\beta_{FE}$	DC Current Gain* ( $I_C=-1.0mA_{dc}$ , $V_{CE}=-10V_{dc}$ ) ( $I_C=-10mA_{dc}$ , $V_{CE}=-10V_{dc}$ ) ( $I_C=-30mA_{dc}$ , $V_{CE}=-10V_{dc}$ )	60 100 60	200	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=-20mA_{dc}$ , $I_B=-2.0mA_{dc}$ )		-0.2	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=-20mA_{dc}$ , $I_B=-2.0mA_{dc}$ )		-0.9	Vdc

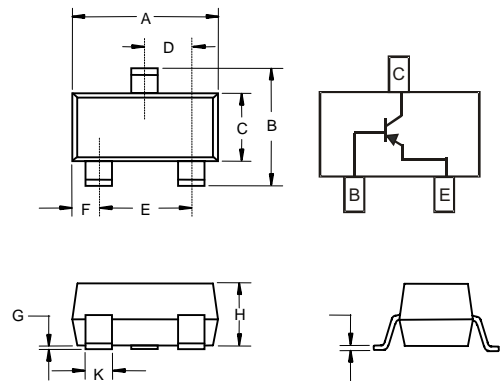
#### SMALL-SIGNAL CHARACTERISTICS

$f_T$	Current Gain-Bandwidth Product ( $I_C=-10mA_{dc}$ , $V_{CE}=-20V_{dc}$ , $f=30MHz$ )	50		MHz
$C_{cb}$	Collector-Base Capacitance ( $V_{CB}=-20V_{dc}$ , $I_E=0$ , $f=1.0MHz$ )		6.0	pF

#### THERMAL CHARACTERISTICS

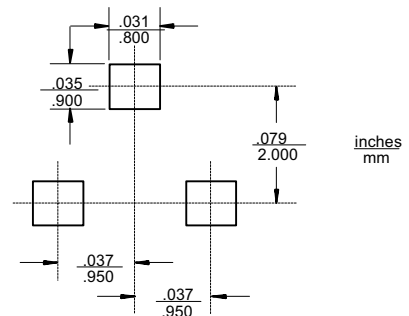
Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board, <sup>(1)</sup> $T_A = 25^\circ C$ Derate above 25°C	$P_D$	225	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	556	°C/W
Total Device Dissipation Alumina Substrate, <sup>(2)</sup> $T_A = 25^\circ C$ Derate above 25°C	$P_D$	300	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	417	°C/W
Junction and Storage Temperature	$T_J, T_{stg}$	-55 to +150	°C

### SOT-23



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.110	.120	2.80	3.04	
B	.083	.104	2.10	2.64	
C	.047	.055	1.20	1.40	
D	.035	.041	.89	1.03	
E	.070	.081	1.78	2.05	
F	.018	.024	.45	.60	
G	.0005	.0039	.013	.100	
H	.035	.044	.89	1.12	
J	.003	.007	.085	.180	
K	.015	.020	.37	.51	

### Suggested Solder Pad Layout



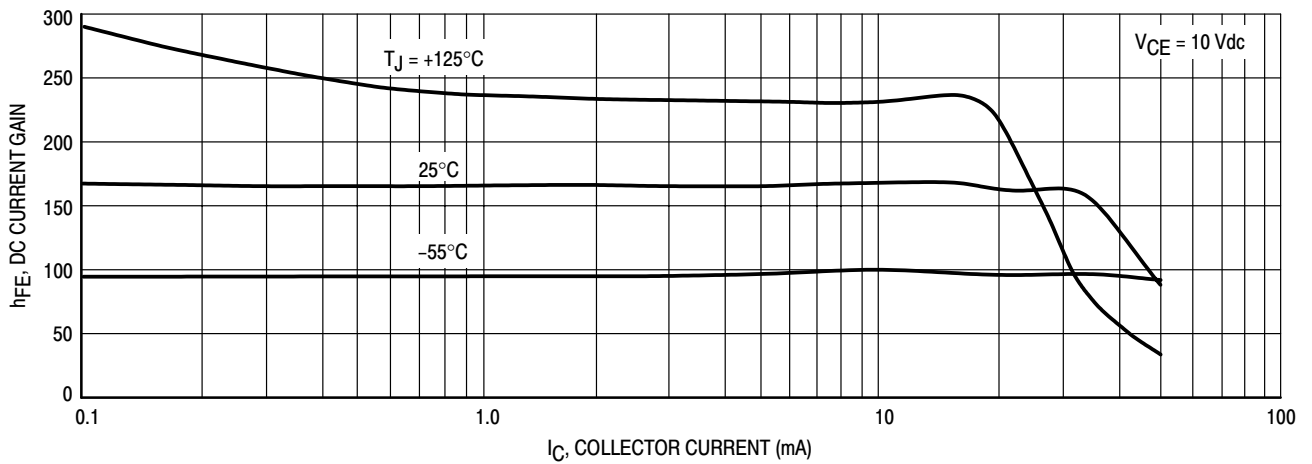


Figure 1. DC Current Gain

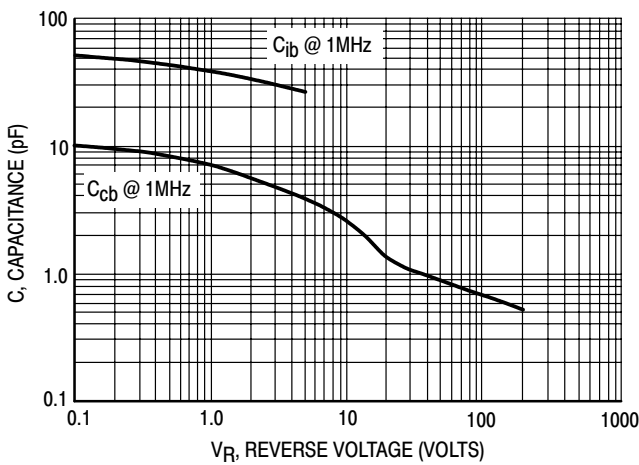


Figure 2. Capacitance

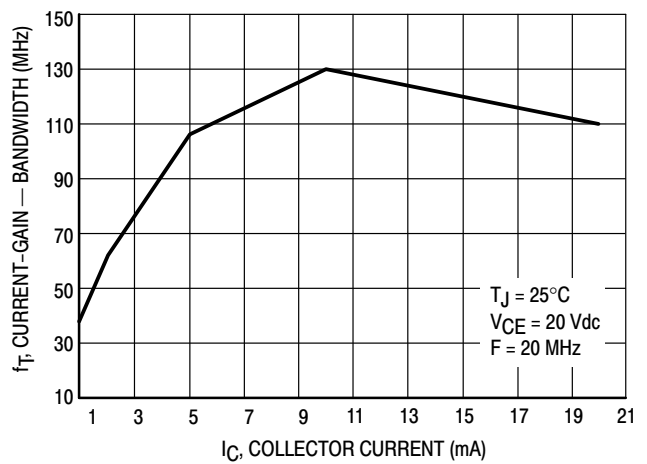


Figure 3. Current-Gain - Bandwidth

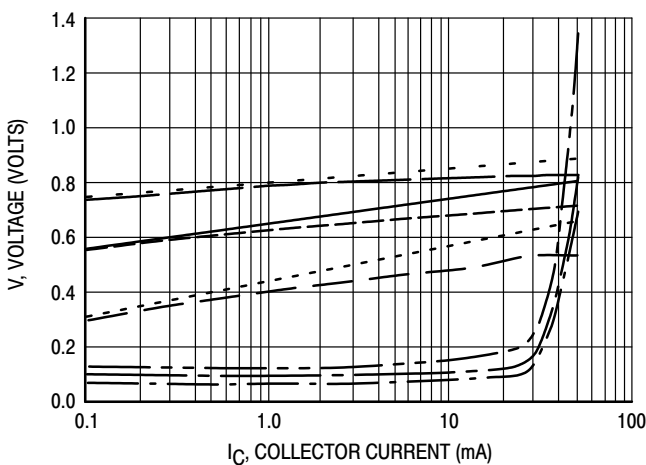


Figure 4. "ON" Voltages

- VCE(sat) @ 25°C, IC/IB = 10
- VCE(sat) @ 125°C, IC/IB = 10
- VCE(sat) @ -55°C, IC/IB = 10
- VBE(sat) @ 25°C, IC/IB = 10
- VBE(sat) @ 125°C, IC/IB = 10
- VBE(sat) @ -55°C, IC/IB = 10
- VBE(on) @ 25°C, VCE = 10 V
- VBE(on) @ 125°C, VCE = 10 V
- VBE(on) @ -55°C, VCE = 10 V



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### Ordering Information :

Device	Packing
Part Number-TP	Tape & Reel; 3 Kpcs/Reel

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

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