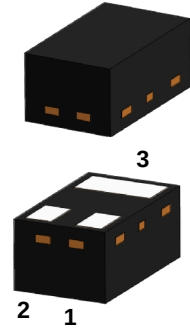


Absolute Maximum Ratings ($T_A = 25^\circ\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-40	V
V_{CEO}	Collector-Emitter Voltage	-40	V
V_{EBO}	Emitter-Base Voltage	-5	V
I_C	Collector Current	-200	mA
P_D	Power Dissipation (FR-4 Board – minimum pad)	200	mW
$R_{\theta JA}$	Thermal Resistance from Junction to Ambient	600	$^\circ\text{C/W}$
T_J T_{STG}	Junction & Storage Temperature Range	-55 to +150	$^\circ\text{C}$

These ratings are limiting values above which the serviceability of the device may be impaired.

Green Product

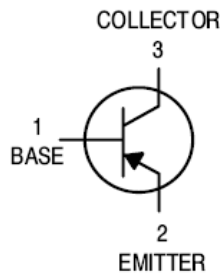


SOT-883 (DFN1006-3)

Specification Features:

- § DFN1006-3
- § Simplifies Circuit Design
- § RoHS Compliant
- § Green EMC
- § Matte Tin(Sn) Lead Finish
- § Weight: approx. 0.001g

Electrical Symbol:



Device Marking Code:

Device Type	Marking	Shipping
MMBT3906FZ-7B-CN	c 3N E B	10,000/Reel

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

Off Characteristics

Symbol	Parameter	Test Condition	Limits		Unit
			Min	Max	
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (Note 1)	$I_C = -1\text{mA}$, $I_B = 0\text{A}$	-40	-	Volts
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	$I_C = -10\text{uA}$, $I_E = 0\text{A}$	-40	-	Volts
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	$I_E = -10\text{uA}$, $I_B = 0\text{A}$	-5	-	Volts
I_{CEX}	Collector Cutoff Current	$V_{CE} = -30\text{V}$, $V_{EB} = -3\text{V}$	-	-50	nA
I_{EBO}	Emitter Cutoff Current	$V_{EB} = -5\text{V}$, $I_C = 0\text{A}$	-	-100	nA

Note 1: Pulse Test. Pulse width <300us, Duty cycle < 2.0%.

On Characteristics (Note 1)

Symbol	Parameter	Test Condition	Limits		Unit
			Min	Max	
H_{FE}	DC Current Gain	$I_C = -0.1mA, V_{CE} = -1V$	60	-	-
		$I_C = -1.0mA, V_{CE} = -1V$	80	-	
		$I_C = -10mA, V_{CE} = -1V$	100	300	
		$I_C = -50mA, V_{CE} = -1V$	60	-	
		$I_C = -100mA, V_{CE} = -1V$	30	-	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	$I_C = -10mA, I_B = -1mA$	-	-0.25	Volts
		$I_C = -50mA, I_B = -5mA$	-	-0.4	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage	$I_C = -10mA, I_B = -1mA$	-0.65	-0.85	Volts
		$I_C = -50mA, I_B = -5mA$	-	-0.95	

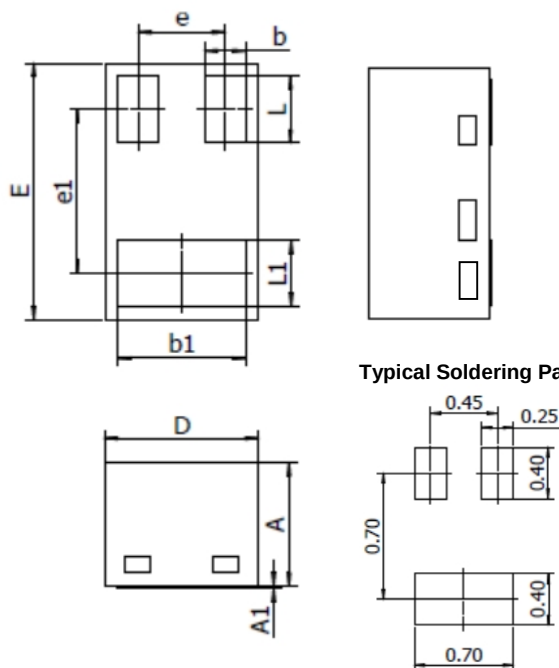
Small-signal Characteristics

Symbol	Parameter	Test Condition	Limits		Unit
			Min	Max	
f_T	Current-Gain-Bandwidth Product	$I_C = -10mA, V_{CE} = -20V, f = 100MHz$	250	-	MHz
C_{obo}	Output Capacitance	$V_{CB} = -5V, I_E = 0A, f = 1.0MHz$	-	4.5	pF
C_{ibo}	Input Capacitance	$V_{BE} = -0.5V, I_C = 0A, f = 1.0MHz$	-	10	pF
h_{ie}	Input Impedance	$V_{CE} = -10V, I_C = -1mA, f = 1.0kHz$	2	12	pF
h_{re}	Voltage Feedback Ratio	$V_{CE} = -10V, I_C = -1mA, f = 1.0kHz$	0.1	10	$\times 10^{-4}$
h_{fe}	Small-signal Current Gain	$V_{CE} = -10V, I_C = -1mA, f = 1.0kHz$	100	400	-
h_{oe}	Output Admittance	$V_{CE} = -10V, I_C = -1mA, f = 1.0kHz$	3	60	$\mu mhos$
NF	Noise Figure	$V_{CE} = -5V, I_C = -100\mu A$ $R_s = 1.0k\Omega, f = 1.0kHz$		4	dB

Switching Characteristics

Symbol	Parameter	Test Condition	Limits		Unit
			Min	Max	
t_d	Delay Time	$V_{CC} = -3V, V_{BE} = -0.5V,$	-	35	nS
t_r	Rise Time	$I_C = -10mA, I_{B1} = -1mA$	-	35	
t_s	Storage Time	$V_{CC} = -3V, I_C = -10mA,$	-	225	nS
t_f	Fall Time	$I_{B1} = I_{B2} = -1mA$	-	75	

SOT-883 Package Outline



Typical Soldering Pattern(mm):

DIM	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.46	0.50	0.018	0.020
A1	---	0.03	---	0.001
D	0.55	0.65	0.022	0.026
E	0.95	1.05	0.037	0.041
b	0.12	0.22	0.005	0.008
b1	0.45	0.55	0.018	0.022
L	0.22	0.32	0.008	0.013
L1	0.22	0.32	0.008	0.013
e	Typ. 0.34		Typ. 0.013	
e1	Typ. 0.65		Typ. 0.026	

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