

MMBT6517LT1

勝特力材料 886-3-5753170
勝特力电子(上海) 86-21-54151736
勝特力电子(深圳) 86-755-83298787
[Http://www.100y.com.tw](http://www.100y.com.tw)

High Voltage Transistor

NPN Silicon

Features

- Pb-Free Packages are Available

ON Semiconductor®

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MAXIMUM RATINGS

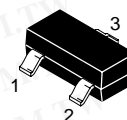
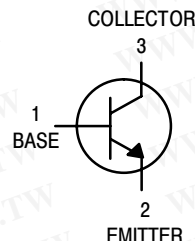
Rating	Symbol	Value	Unit
Collector – Emitter Voltage	V_{CEO}	350	Vdc
Collector – Base Voltage	V_{CBO}	350	Vdc
Emitter – Base Voltage	V_{EBO}	5.0	Vdc
Base Current	I_B	250	mAdc
Collector Current – Continuous	I_C	500	mAdc

THERMAL CHARACTERISTICS

Characteristic	Symbol	Max	Unit
Total Device Dissipation FR-5 Board (Note 1) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	225 1.8	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$
Total Device Dissipation Alumina Substrate, (Note 2) $T_A = 25^\circ\text{C}$ Derate above 25°C	P_D	300 2.4	mW mW/ $^\circ\text{C}$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	417	$^\circ\text{C/W}$
Junction and Storage Temperature	T_J, T_{stg}	-55 to +150	$^\circ\text{C}$

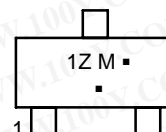
Maximum ratings are those values beyond which device damage can occur. Maximum ratings applied to the device are individual stress limit values (not normal operating conditions) and are not valid simultaneously. If these limits are exceeded, device functional operation is not implied, damage may occur and reliability may be affected.

- FR-5 = $1.0 \times 0.75 \times 0.062$ in.
- Alumina = $0.4 \times 0.3 \times 0.024$ in. 99.5% alumina.



SOT-23 (TO-236AB)
CASE 318
STYLE 6

MARKING DIAGRAM



1Z = Device Code
M = Date Code*
■ = Pb-Free Package

(Note: Microdot may be in either location)

*Date Code orientation and/or overbar may vary depending upon manufacturing location.

ORDERING INFORMATION

See detailed ordering and shipping information in the package dimensions section on page 2 of this data sheet.

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ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Max	Unit
OFF CHARACTERISTICS				
Collector–Emitter Breakdown Voltage (I _C = 1.0 mA _{dc})	V _{(BR)CEO}	350	–	V _{dc}
Collector–Base Breakdown Voltage (I _C = 100 µA _{dc})	V _{(BR)CBO}	350	–	V _{dc}
Emitter–Base Breakdown Voltage (I _E = 10 µA _{dc})	V _{(BR)EBO}	6.0	–	V _{dc}
Collector Cutoff Current (V _{CB} = 250 V _{dc})	I _{CBO}	–	50	nA _{dc}
Emitter Cutoff Current (V _{EB} = 5.0 V _{dc})	I _{EBO}	–	50	nA _{dc}

ON CHARACTERISTICS

DC Current Gain (I _C = 1.0 mA _{dc} , V _{CE} = 10 V _{dc}) (I _C = 10 mA _{dc} , V _{CE} = 10 V _{dc}) (I _C = 30 mA _{dc} , V _{CE} = 10 V _{dc}) (I _C = 50 mA _{dc} , V _{CE} = 10 V _{dc}) (I _C = 100 mA _{dc} , V _{CE} = 10 V _{dc})	h _{FE}	20 30 30 20 15	– – 200 200 –	–
Collector–Emitter Saturation Voltage (Note 3) (I _C = 10 mA _{dc} , I _B = 1.0 mA _{dc}) (I _C = 20 mA _{dc} , I _B = 2.0 mA _{dc}) (I _C = 30 mA _{dc} , I _B = 3.0 mA _{dc}) (I _C = 50 mA _{dc} , I _B = 5.0 mA _{dc})	V _{CE(sat)}	– – – –	0.30 0.35 0.50 1.0	V _{dc}
Base–Emitter Saturation Voltage (I _C = 10 mA _{dc} , I _B = 1.0 mA _{dc}) (I _C = 20 mA _{dc} , I _B = 2.0 mA _{dc}) (I _C = 30 mA _{dc} , I _B = 3.0 mA _{dc})	V _{BE(sat)}	– – –	0.75 0.85 0.90	V _{dc}
Base–Emitter On Voltage (I _C = 100 mA _{dc} , V _{CE} = 10 V _{dc})	V _{BE(on)}	–	2.0	V _{dc}

SMALL–SIGNAL CHARACTERISTICS

Current Gain – Bandwidth Product (I _C = 10 mA _{dc} , V _{CE} = 20 V _{dc} , f = 20 MHz)	f _T	40	200	MHz
Collector–Base Capacitance (V _{CB} = 20 V _{dc} , f = 1.0 MHz)	C _{cb}	–	6.0	pF
Emitter–Base Capacitance (V _{EB} = 0.5 V _{dc} , f = 1.0 MHz)	C _{eb}	–	80	pF

3. Pulse Test: Pulse Width = 300 µs, Duty Cycle = 2.0%.

ORDERING INFORMATION

Device Order Number	Package Type	Tape and Reel Size [†]
MMBT6517LT1	SOT–23	3,000 Units / Tape & Reel
MMBT6517LT1G	SOT–23 (Pb–Free)	3,000 Units / Tape & Reel
MMBT6517LT3	SOT–23	10,000 Units / Tape & Reel
MMBT6517LT3G	SOT–23 (Pb–Free)	10,000 Units / Tape & Reel

[†]For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

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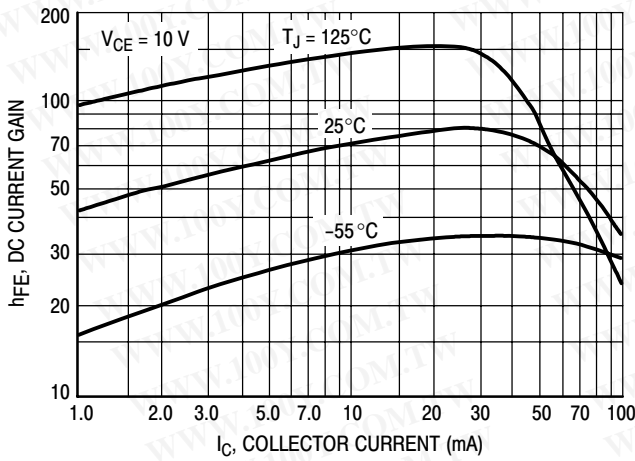


Figure 1. DC Current Gain

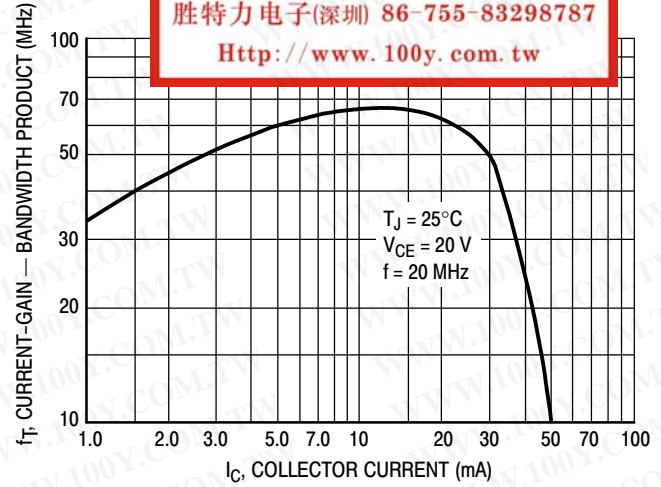


Figure 2. Current-Gain — Bandwidth Product

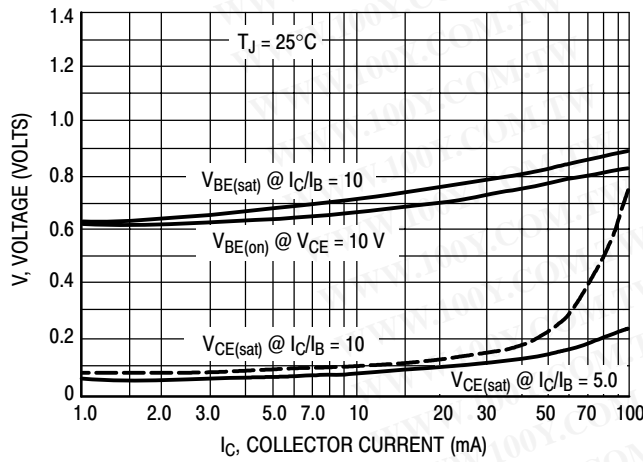


Figure 3. "On" Voltages

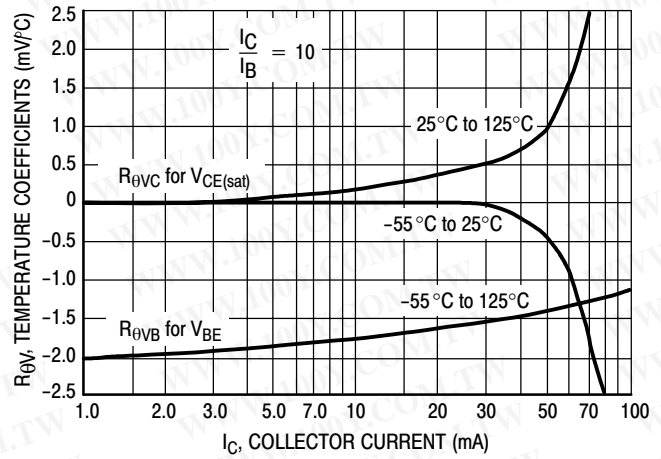


Figure 4. Temperature Coefficients

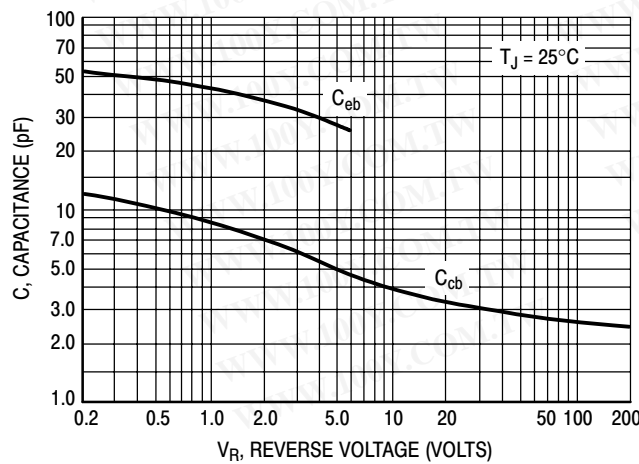


Figure 5. Capacitance

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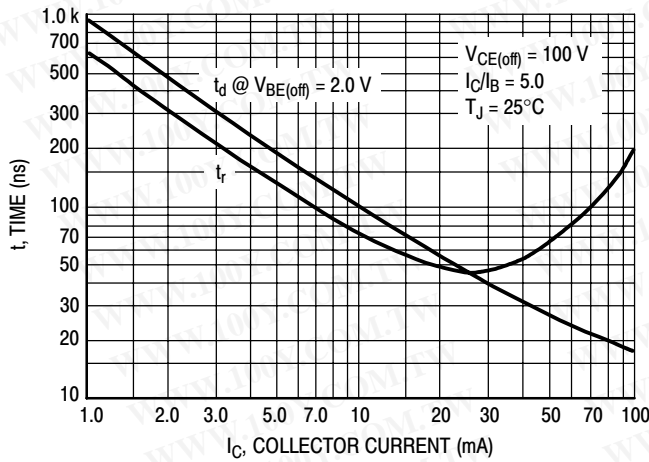


Figure 6. Turn-On Time

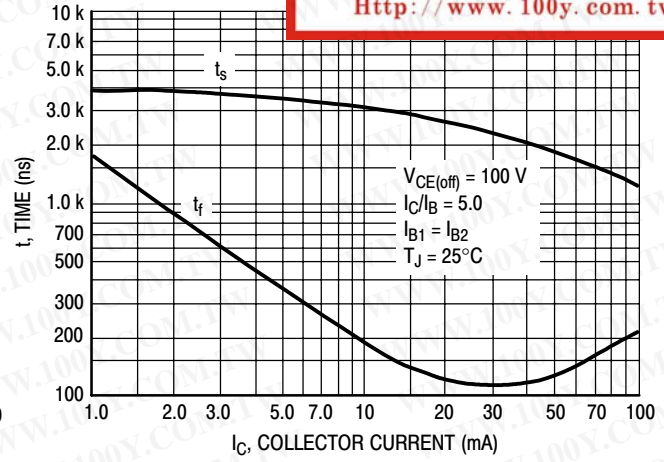


Figure 7. Turn-Off Time

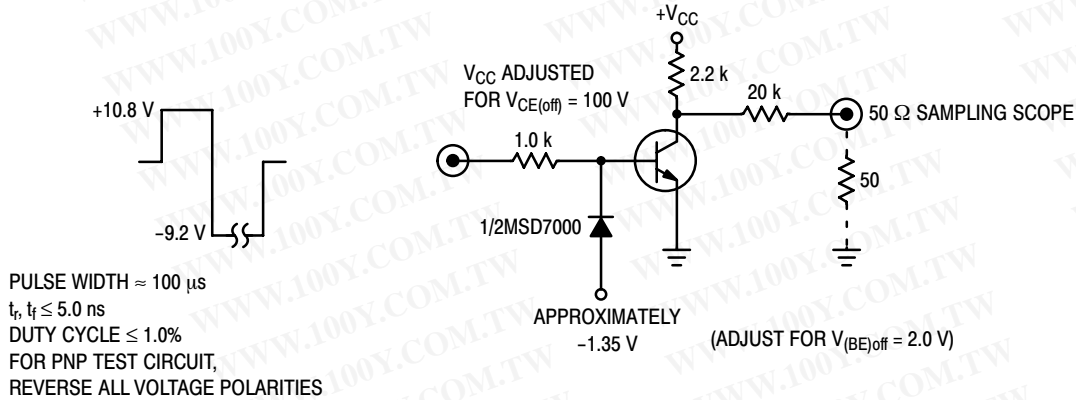


Figure 8. Switching Time Test Circuit

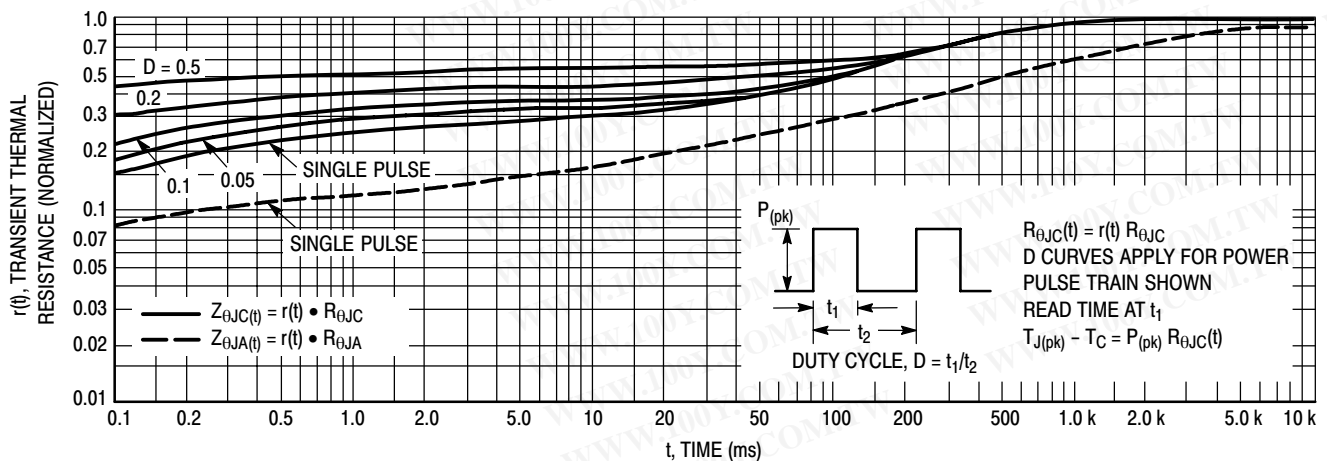


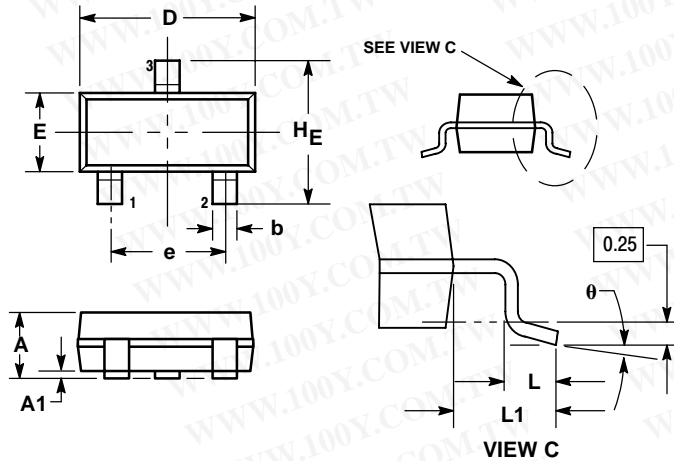
Figure 9. Thermal Response

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PACKAGE DIMENSIONS

SOT-23 (TO-236)
CASE 318-08
ISSUE AM

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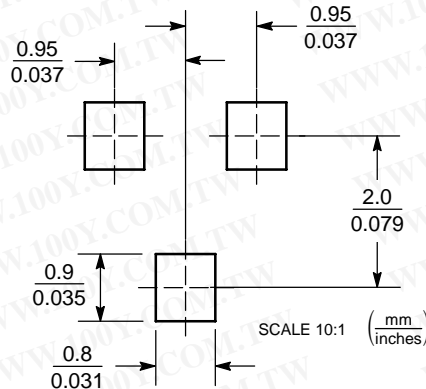
- NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
 2. CONTROLLING DIMENSION: INCH.
 3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
 4. 318-01 THRU -07 AND -09 OBSOLETE, NEW STANDARD 318-08.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.89	1.00	1.11	0.035	0.040	0.044
A1	0.01	0.06	0.10	0.001	0.002	0.004
b	0.37	0.44	0.50	0.015	0.018	0.020
c	0.09	0.13	0.18	0.003	0.005	0.007
D	2.80	2.90	3.04	0.110	0.114	0.120
E	1.20	1.30	1.40	0.047	0.051	0.055
e	1.78	1.90	2.04	0.070	0.075	0.081
L	0.10	0.20	0.30	0.004	0.008	0.012
L1	0.35	0.54	0.69	0.014	0.021	0.029
H_E	2.10	2.40	2.64	0.083	0.094	0.104


STYLE 6:

1. BASE
2. EMITTER
3. COLLECTOR

SOLDERING FOOTPRINT*



*For additional information on our Pb-Free strategy and soldering details, please download the ON Semiconductor Soldering and Mounting Techniques Reference Manual, SOLDERRM/D.

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