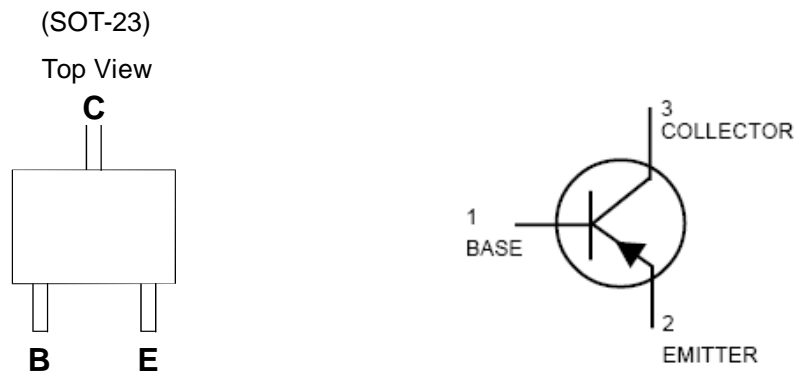


General Purpose Transistor

PNP Silicon

- We declare that the material of product compliance with RoHS requirements .

PIN CONFIGURATION



Maximum Ratings & Thermal Characteristics

MAXIMUM RATINGS

Rating	Symbol	Value	Unit
Collector–Emitter Voltage	V_{CE0}	–60	Vdc
Collector–Base Voltage	V_{CB0}	–60	Vdc
Emitter–Base Voltage	V_{EB0}	–5.0	Vdc
Collector Current — Continuous	I_C	–600	mAdc

Ordering Information

Product	Status	Marking	Real Size(inches)	Tape Width(mm)	Shipping
MEBT2907A-G	Active	2F	7	8	3000/Reel



General Purpose Transistor
THERMAL CHARACTERISTICS

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

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted.)

Characteristic	Symbol	Min	Max	Unit
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OFF CHARACTERISTICS

Collector-Emitter Breakdown Voltage(3) ($I_C = -10\text{ mAdc}, I_E = 0$)	$V_{(BR)CEO}$	-60	—	Vdc
Collector-Emitter Breakdown Voltage($I_C = -10\ \mu\text{Adc}, I_E = 0$)	$V_{(BR)CBO}$	-60	—	Vdc
Emitter-Base Breakdown Voltage($I_E = -10\ \mu\text{Adc}, I_C = 0$)	$V_{(BR)EBO}$	-5.0	—	Vdc
Collector Cutoff Current($V_{CB} = -30\text{Vdc}, I_{BE(OFF)} = -0.5\text{Vdc}$)	I_{CEX}	—	-50	nAdc
Collector Cutoff Current ($V_{CB} = -50\text{Vdc}, I_E = 0$) ($V_{CB} = -50\text{Vdc}, I_E = 0, T_A = 125^\circ\text{C}$)	I_{CBO}	—	-0.010 -10	μAdc
Base Current($V_{CE} = -30\text{Vdc}, V_{EB(OFF)} = -0.5\text{Vdc}$)	I_B	—	-50	nAdc

- FR-5 = 1.0 x 0.75 x 0.062 in.
- Alumina = 0.4 x 0.3 x 0.024 in. 99.5% alumina.
- Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise noted) (Continued)

Characteristic	Symbol	Min	Max	Unit
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ON CHARACTERISTICS

DC Current Gain ($I_C = -0.1\text{ mAdc}, V_{CE} = -10\text{ Vdc}$) ($I_C = -1.0\text{ mAdc}, V_{CE} = -10\text{ Vdc}$) ($I_C = -10\text{ mAdc}, V_{CE} = -10\text{Vdc}$) ($I_C = -150\text{ mAdc}, V_{CE} = -10\text{ Vdc}$)(3) ($I_C = -500\text{ mAdc}, V_{CE} = -10\text{ Vdc}$)(3)	h_{FE}	75 100 100 100 50	—	—
Collector-Emitter Saturation Voltage(3) ($I_C = -150\text{ mAdc}, I_B = -15\text{ mAdc}$) ($I_C = -500\text{ mAdc}, I_B = -50\text{ mAdc}$)	$V_{CE(sat)}$	—	-0.4 -1.6	Vdc
Base-Emitter Saturation Voltage(3) ($I_C = -150\text{ mAdc}, I_B = -15\text{ mAdc}$) ($I_C = -500\text{ mAdc}, I_B = -50\text{ mAdc}$)	$V_{BE(sat)}$	—	-1.3 -2.6	Vdc

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General Purpose Transistor

SMALL-SIGNAL CHARACTERISTICS

Current-Gain — Bandwidth Product(3),(4) ($I_C = -50\text{mA dc}$, $V_{CE} = -20\text{V dc}$, $f = 100\text{MHz}$)	f_T	200	—	MHz
Output Capacitance ($V_{CE} = -10\text{V dc}$, $I_E = 0$, $f = 1.0\text{MHz}$)	C_{obo}	—	8.0	pF
Input Capacitance ($V_{EB} = -2.0\text{V dc}$, $I_C = 0$, $f = 1.0\text{MHz}$)	C_{ibo}	—	30	pF

SWITCHING CHARACTERISTICS

Turn-On Time	$(V_{CC} = -30\text{V dc}$, $I_C = -150\text{mA dc}$, $I_{B1} = -15\text{mA dc}$)	t_{on}	—	45	
Delay Time		t_d	—	10	ns
Rise Time		t_r	—	40	
Fall Time	$(V_{CC} = -6.0\text{V dc}$, $I_C = -150\text{mA dc}$, $I_{B1} = I_{B2} = 15\text{mA dc}$)	t_f	—	30	
Storage Time		t_s	—	80	ns
Turn-Off Time		t_{off}	—	100	

3. Pulse Test: Pulse Width $\leq 300\ \mu\text{s}$, Duty Cycle $\leq 2.0\%$.

4. f_T is defined as the frequency at which $|h_{fe}|$ extrapolates to unity.

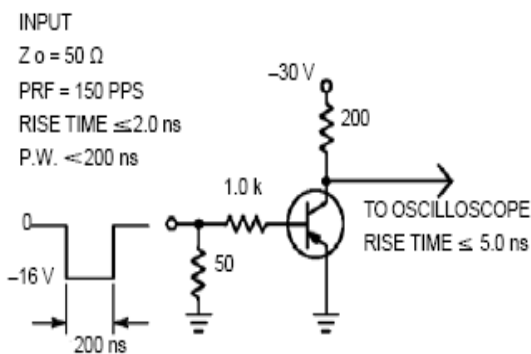


Figure 1. Delay and Rise Time Test Circuit

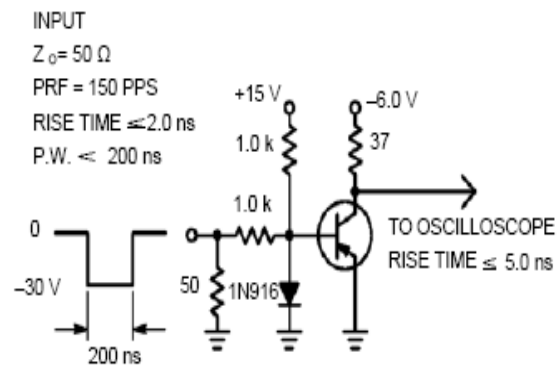


Figure 2. Storage and Fall Time Test Circuit



TYPICAL CHARACTERISTICS

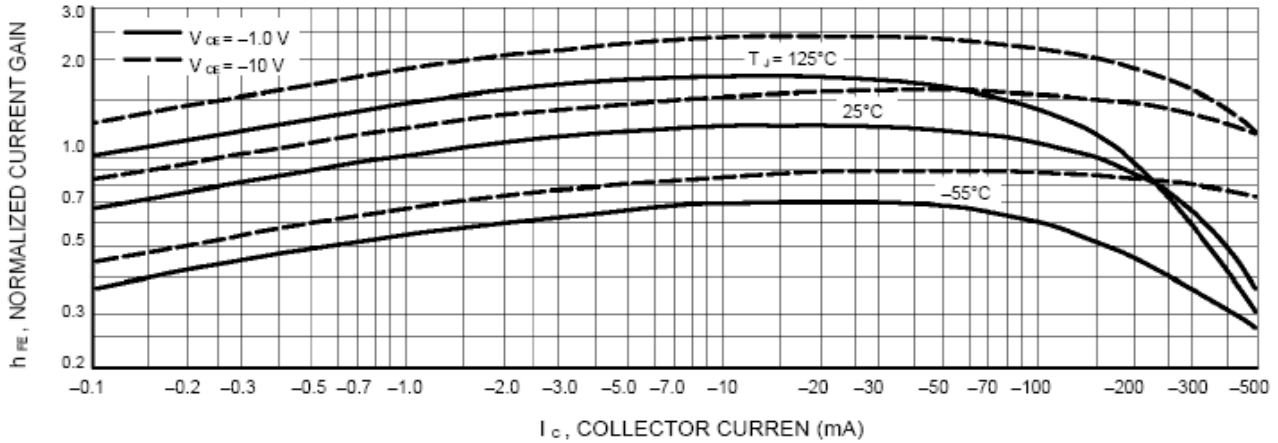


Figure 3. DC Current Gain

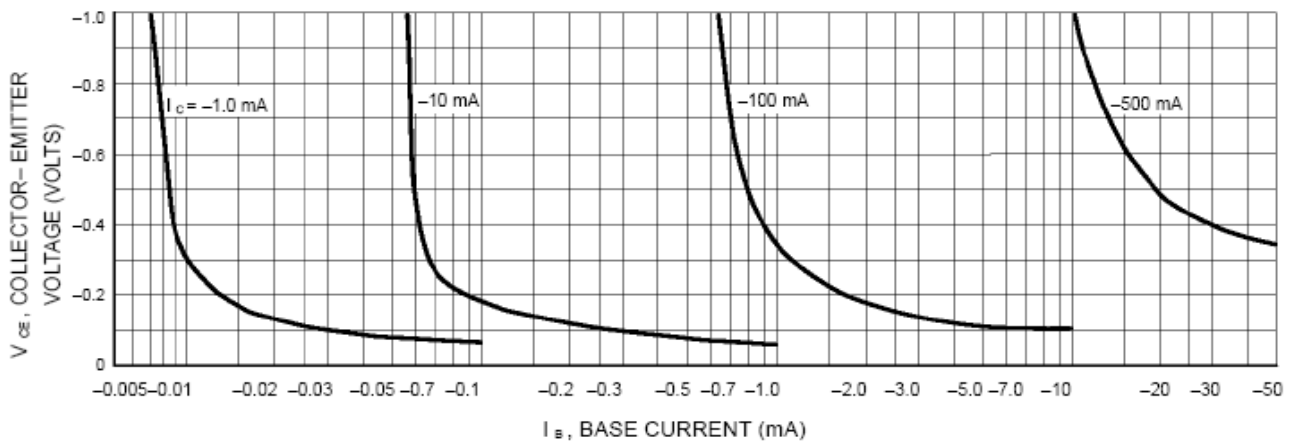


Figure 4. Collector Saturation Region

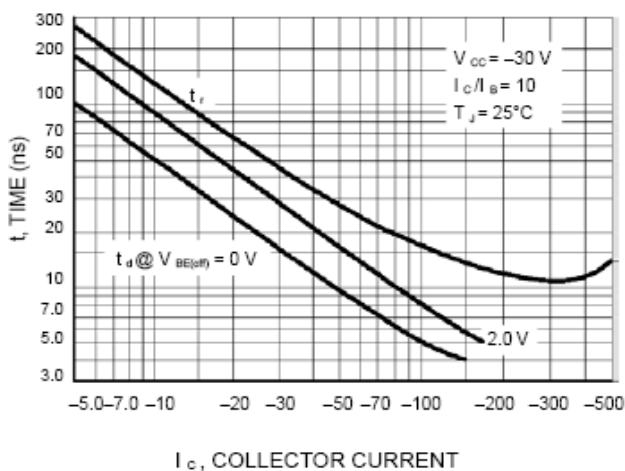


Figure 5. Turn-On Time

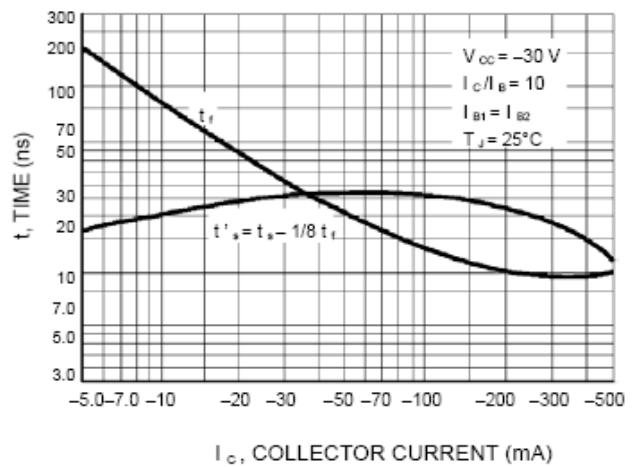


Figure 6. Turn-Off Time

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TYPICAL SMALL-SIGNAL CHARACTERISTICS

NOISE FIGURE

$V_{CE} = 10 \text{ Vdc}$, $T_A = 25^\circ\text{C}$

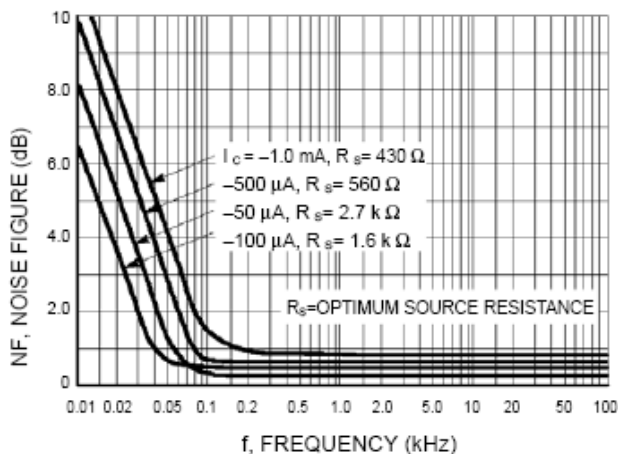


Figure 7. Frequency Effects

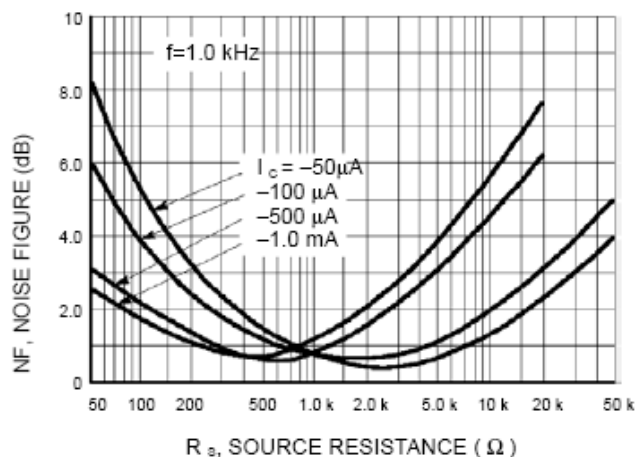


Figure 8. Source Resistance Effects

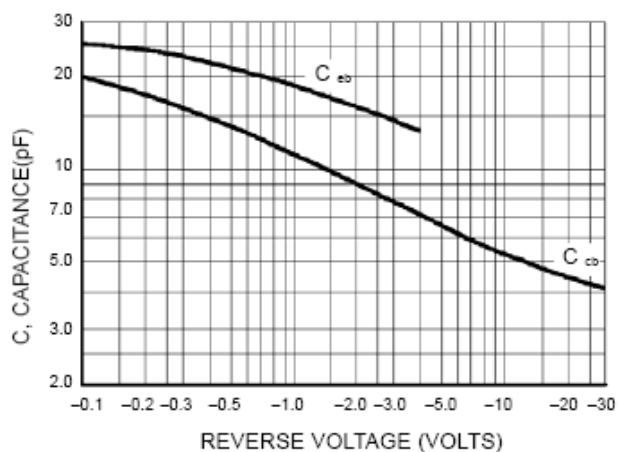


Figure 9. Capacitances

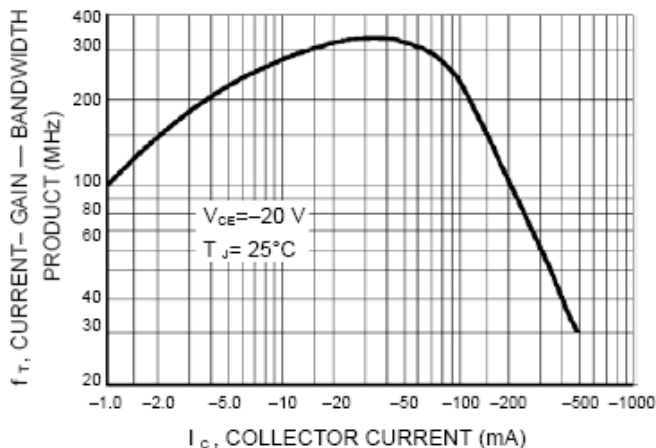


Figure 10. Current-Gain — Bandwidth Product

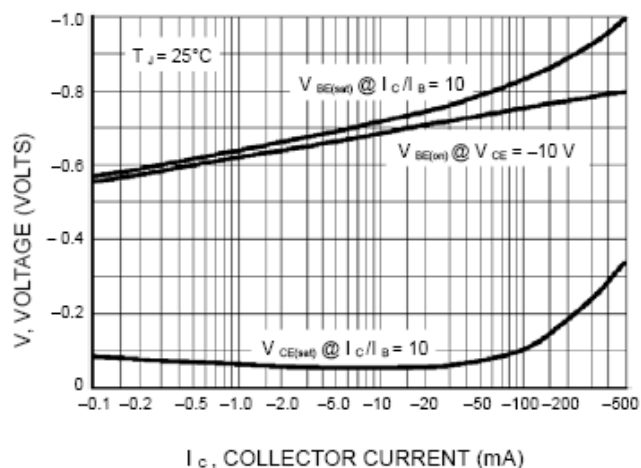


Figure 11. "On" Voltage

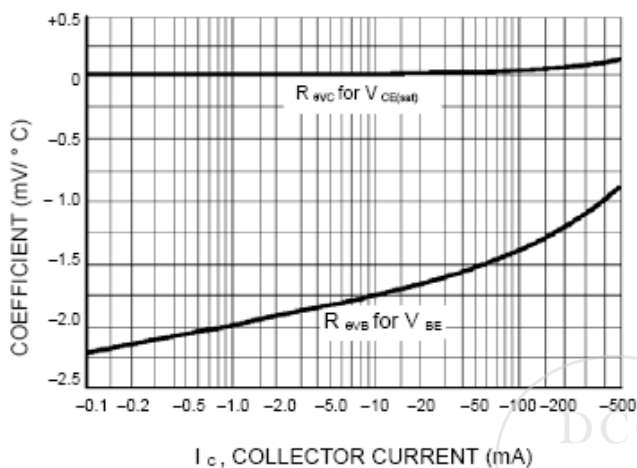


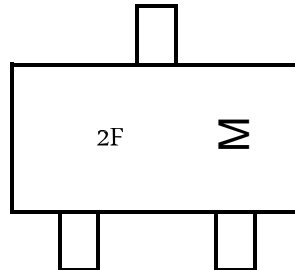
Figure 12. Temperature Coefficients

General Purpose Transistor

Device name:MEBT2907A-G

Package:SOT-23

Marking Code:



2F: Device Marking Code

M: Date Code

MONTH CODE

ODD YEARS(2009,2011)

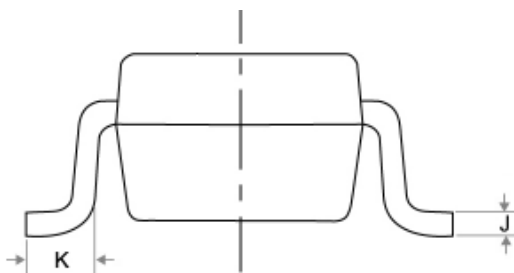
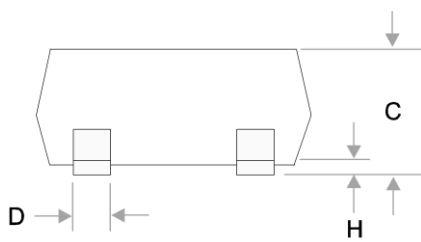
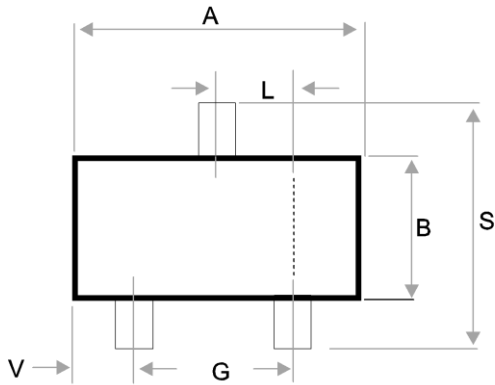
Jan	1
Feb	2
Mar	3
Apr	4
May	5
Jun	6
Jul	7
Aug	8
Sep	9
Oct	T
Nov	V
Dec	C

EVEN YEARS(2010,2012)

Jan	E
Feb	F
Mar	H
Apr	J
May	K
Jun	L
Jul	N
Aug	P
Sep	U
Oct	X
Nov	Y
Dec	Z



SOT-23 Package Outline



DIM	MILLIMETERS	
	MIN	MAX
A	2.80	3.04
B	1.20	1.40
C	0.89	1.11
D	0.37	0.50
G	1.78	2.04
H	0.013	0.100
J	0.085	0.177
K	0.35	0.69
L	0.89	1.02
S	2.10	2.64
V	0.45	0.60

