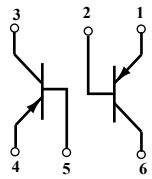
WEITRON

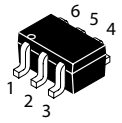
MBT3906DW

Dual General Purpose Transistor
PNP+PNP Silicon

*** "G" Lead(Pb)-Free**



PNP+PNP



SOT-363(SC-88)

Maximum Ratings

Rating	Symbol	Value	Unit
Collector-Emitter Voltage	V_{CEO}	-40	Vdc
Collector-Base Voltage	V_{CBO}	-40	Vdc
Emitter-Base Voltage	V_{EBO}	-5.0	Vdc
Collector Current-Continuous	I_C	-200	mAdc

Thermal Characteristics

Characteristics	Symbol	Max	Unit
Total Device Dissipation T_A=25°C (1)	P_D	150	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	833	°C/W
Junction and Storage, Temperature	$T_{J,Tstg}$	-55 to +150	°C

Device Marking

MBT3906DW=A2

Electrical Characteristics (TA=25°C Unless Otherwise noted)

Characteristics	Symbol	Min	Max	Unit
Off Characteristics				
Collector-Emitter Breakdown Voltage(2) (I_C=-1.0mAdc.I_B=0)	V(BR)CEO	-40	-	Vdc
Collector-Base Breakdown Voltage (IC=-10 uAdc, IE=0)	V(BR)CBO	-40	-	Vdc
Emitter-Base Breakdown Voltage (IE=-10 uAdc, IC=0)	V(BR)EBO	-5.0	-	Vdc
Base Cutoff Current (V_{CE}=-30 Vdc, V_{EB} =-3.0 Vdc)	I_{BL}	-	-50	nAdc
Collector Cutoff Current (V_{CE}=-30Vdc, V_{EB}=-3.0Vdc)	I_{CEX}	-	-50	nAdc

1.Decice Mounted on FR4 glass epoxy printed circuit board using the minimun recommended foot print.
2.Pulse Test:Pluse Width≦300 μS, Duty Cycle≦2.0%.

Electrical Characteristics (T_A=25°C unless otherwise noted) (Countinued)

Characteristics	Symbol	Min	Max	Unit
On Characteristics (2)				
DC Current Gain				
(I_C= -0.1 mAdc, V_{CE}= -1.0Vdc)	H_{FE}	60	-	-
(I_C= -1.0 mAdc, V_{CE}= -1.0 Vdc)		80	-	
(I_C= -10 mAdc, V_{CE}= -1.0Vdc)		100	300	
(I_C= -50 mAdc, V_{CE}= -1.0Vdc)		60	-	
(I_C= -100 mAdc, V_{CE}= -1.0Vdc)		30	-	
Collector-Emitter Saturation Voltage (2)				
(I_C= -10 mAdc, I_B= -1.0mAdc)	$V_{CE(sat)}$	-	-0.25	Vdc
(I_C= -50 mAdc, I_B= -5.0mAdc)		-	-0.4	
Base-Emitter Saturation Voltage (2)				
(I_C= -10 mAdc, I_B= -1.0 mAdc)	$V_{BE(sat)}$	-0.65	-0.85	Vdc
(I_C= -50 mAdc, I_B= -5.0 mAdc)		-	-0.95	
Small-signal Characteristics				
Current-Gain-Bandwidth Product (1) (I_C= -10 mAdc, V_{CE}= -20 Vdc, f=100MHz)	f_T	250	-	MHz
Output Capacitance (V_{CB}= -5.0 Vdc, I_E=0, f=1.0MHz)	C_{obo}	-	4.5	pF
Input Capacitance (V_{EB}= -0.5 Vdc, I_C=0, f=1.0MHz)	C_{ibo}	-	10	pF
Input Impedance (VCE= -10 Vdc IC=-1.0 mAdc, f=1.0 kHz)	h_{ie}	2.0	12	k ohms
Voltage Feeback Radio (V_{CE}= -10Vdc I_C=1.0 mAdc, f=1.0 kHz)	h_{re}	0.1	10	x 10^{-4}
Small-Signal Current Gain (VCE= -10Vdc IC=1.0 mAdc, , f=1.0 kHz)	h_{fe}	100	400	.
Output Admittance (V_{CE}= -10Vdc I_C=1.0 mAdc, f=-1.0kHz)	h_{oe}	3.0	60	µmhos
Noise Figure (V_{CE}= -5.0Vdc I_C= -100 µAdc, , R_S=1.0k ohms, f=1.0kHz)	NF	-	4.0	dB
Switching Characteristics				
Delay Time	(Vcc= -3.0 Vdc, VBE= 0.5 Vdc	td	-	35	ns
Rise Time	Ic= -10 mAdc, IB1= -1.0 mAdc)	tr	-	35	
Storage Time	(Vcc= -3.0 Vdc,	ts	-	225	ns
Fall Time	Ic= -10 mAdc, IB1=IB2= -1.0 mAdc)	tf	-	75	

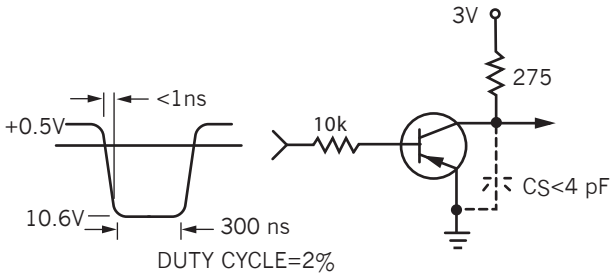
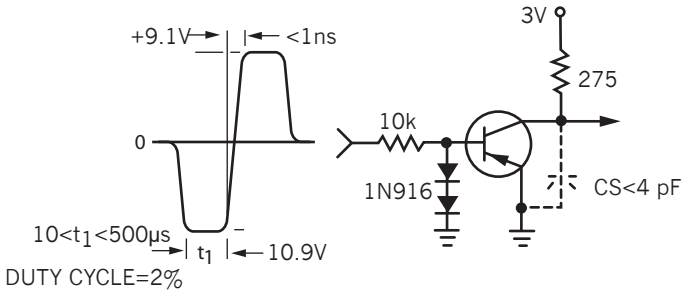


Figure 1. Delay and Rise Time Equivalent Test Circuit



*Total shunt capacitance of test jig and connectors

Figure . Storage and Fall Time Equivalent Test Circuit

TYPICAL TRANSIENT CHARACTERISTICS

——— T_J=25°C ·- - - - T_J=125°C

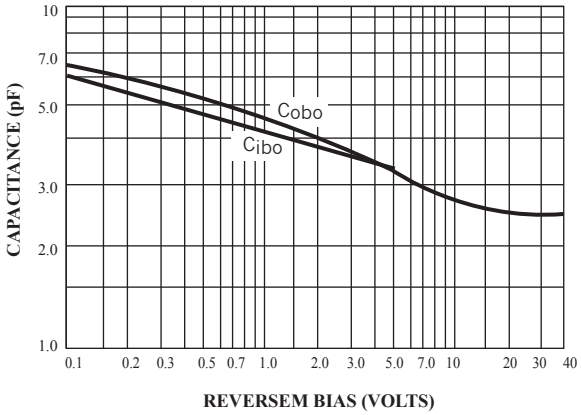


Figure 3. Capacitance

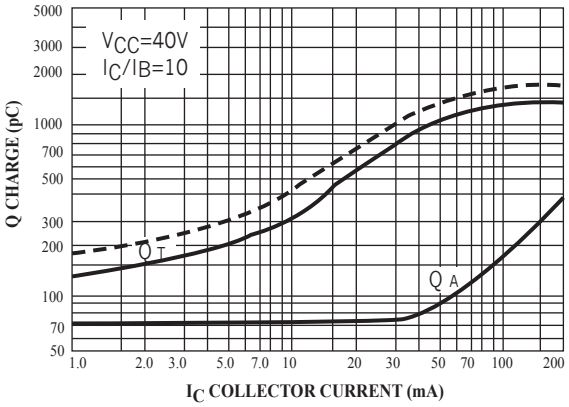


Figure 4. Charge Data

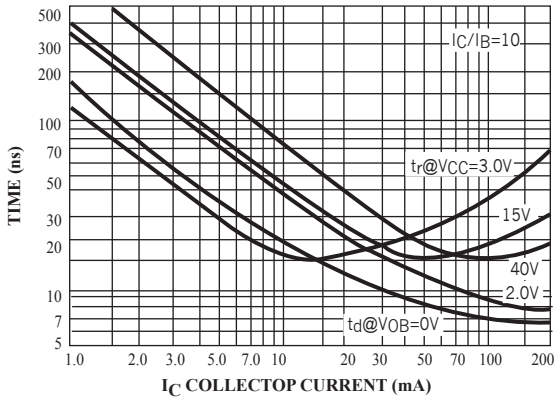


Figure 5. Turn-On Time

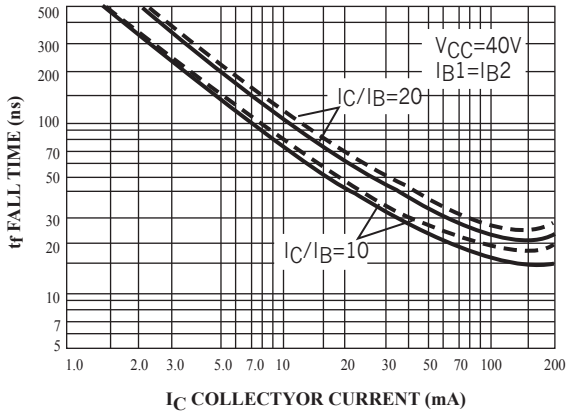


Figure 6.Fall Time

TYPICAL AUDIO SMALL-SIGNAL CHARACTERISTICS NOISE FIGURE VARIATIONS

(V_{CE}= -5.0 Vdc, T_A= 25°C, Bandwidth= 1.0Hz)

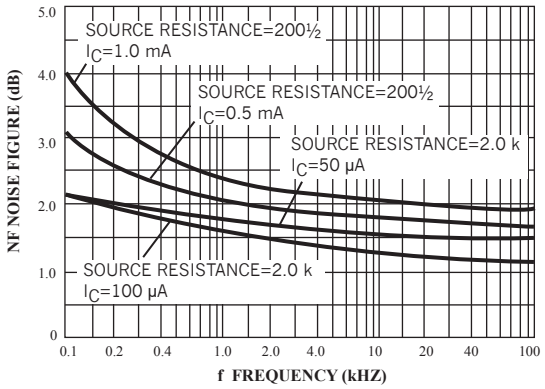


Figure 7.

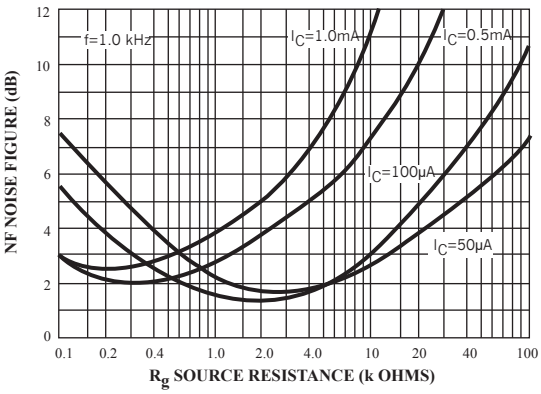


Figure 8.

h PARAMETERS (V_{CE}= -10 Vdc, f= 1.0 kHz, T_A= 25°C)

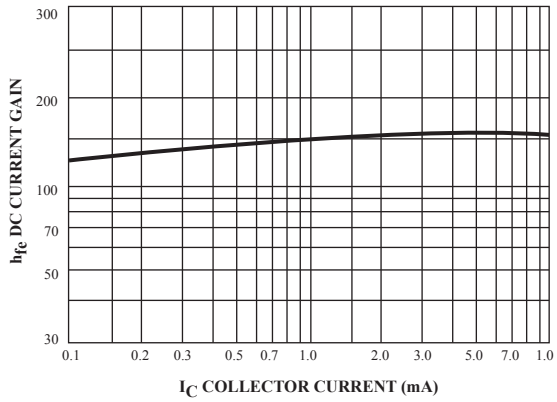


Figure 9. Current Gain

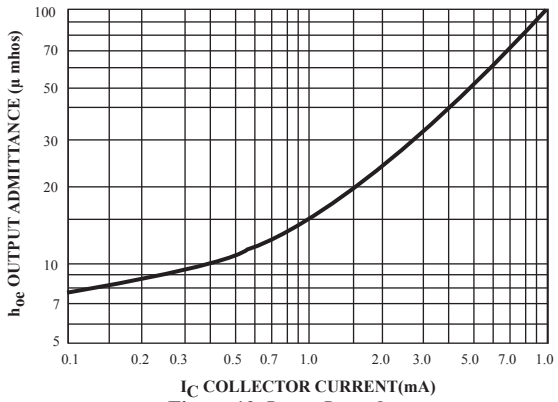


Figure 10. Input Impedance

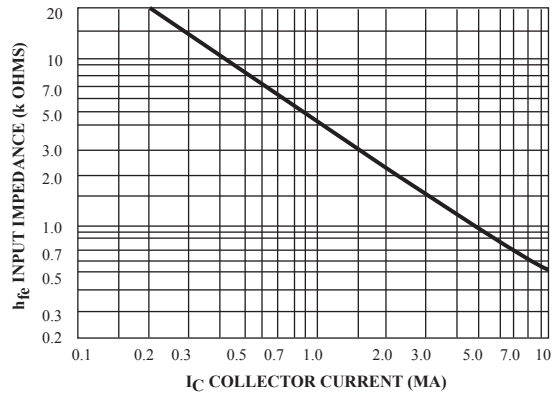


Figure .11 Input Impedance

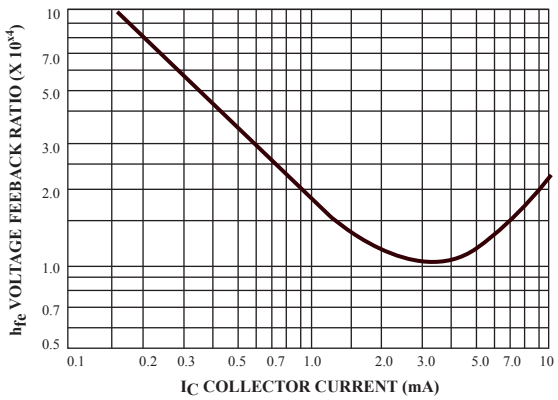
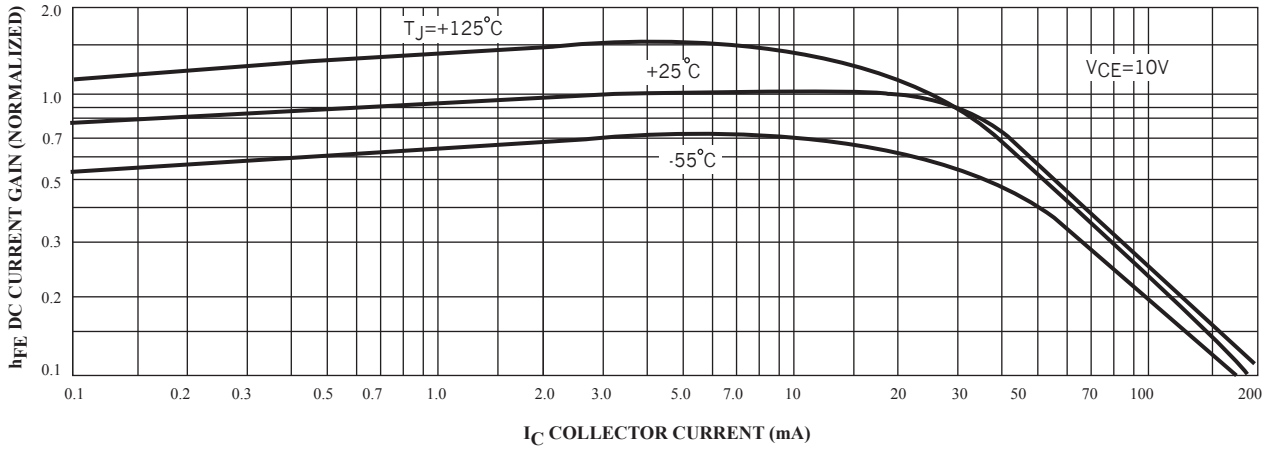


Figure 12. Votage Feeback Ratio

TYPICAL STATIC CHARACTERISTICS



Figurer 13. DC Current Gain

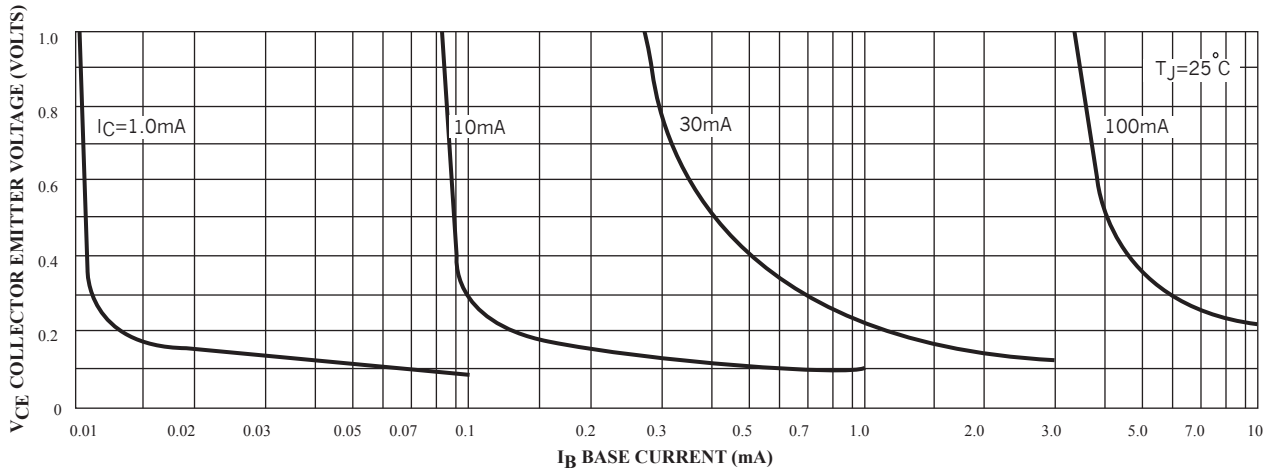


Figure 14. Collector Saturation Region

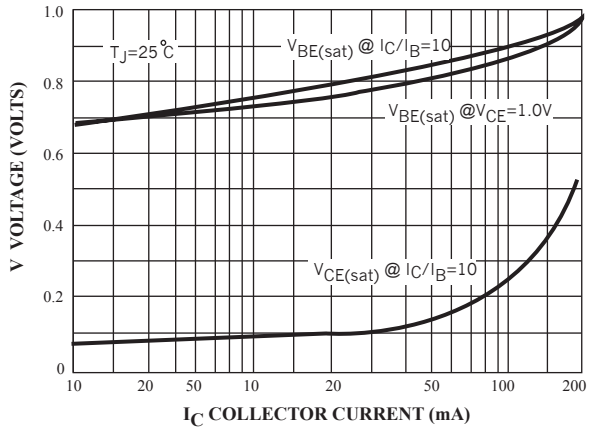


Figure 15. "ON" Voltages

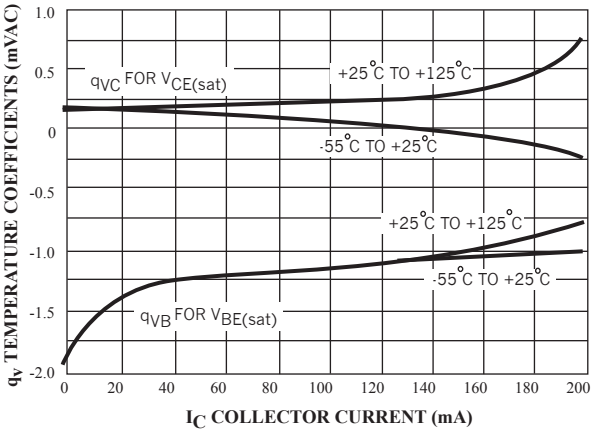
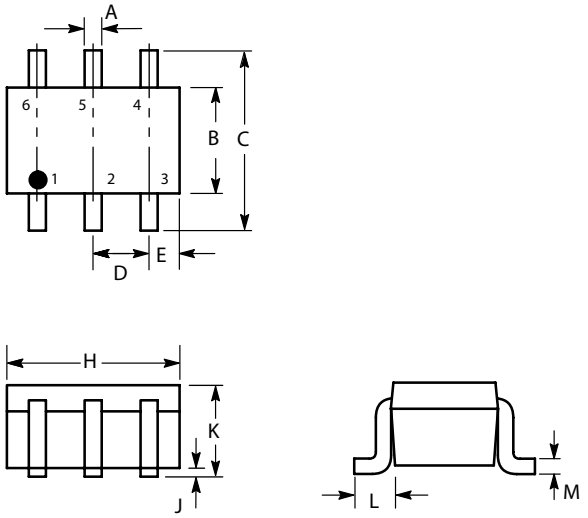


Figure 16.Temperature Coefficients

SOT-363 Package Outline Dimensions

Unit:mm



SOT-363		
Dim	**Min**	**Max**
A	0.10	0.30
B	1.15	1.35
C	2.00	2.20
D	0.65 REF	
E	0.30	0.40
H	1.80	2.20
J	-	0.10
K	0.80	1.10
L	0.25	0.40
M	0.10	0.25