



WT3946DW

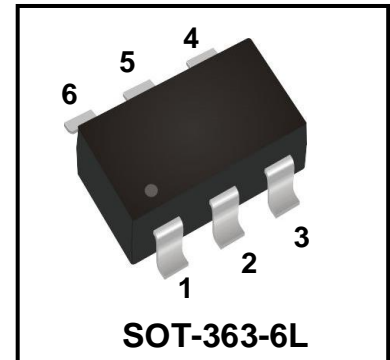
Dual NPN+PNP Silicon Transistors

Features

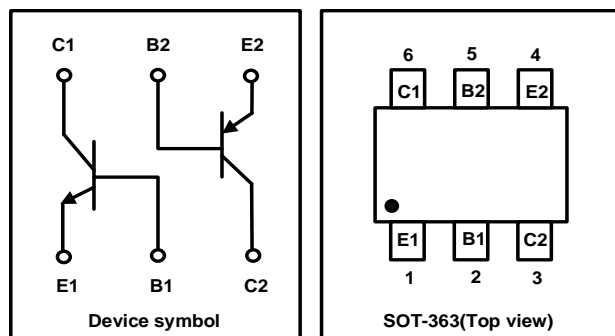
- Lead Free Finish
- Ideal for Low Power Amplification and Switching
- Rugged and Reliable

Mechanical Characteristics

- SOT-363-6L Package
- Marking : Making Code
- RoHS Compliant



Schematic & PIN Configuration



Absolute Maximum Rating TR1(NPN:P1&P2&P6)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	60	V
Collector Emitter Voltage	V_{CEO}	40	V
Emitter Base Voltage	V_{EBO}	5	V
Collector Current Continuous	I_c	0.2	A
Collector Power Dissipation	P_c	0.2	W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~ 150	°C

Absolute Maximum Rating TR2(PNP:P3&P4&P5)

Parameter	Symbol	Value	Unit
Collector Base Voltage	V_{CBO}	-40	V
Collector Emitter Voltage	V_{CEO}	-40	V
Emitter Base Voltage	V_{EBO}	-5	V
Collector Current	I_c	-0.2	A
Collector Power Dissipation	P_c	0.2	W
Junction Temperature	T_j	150	°C
Storage Temperature	T_{stg}	-55 ~ 150	°C

Electrical Characteristics of TR1(NPN) (Tamb=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = 10\mu A, I_E = 0$	60	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = 1mA, I_B = 0$	40	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = 10\mu A, I_C = 0$	5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = 30V, I_E = 0$	-	-	50	nA
Collector Cut-off Current	I_{CEO}	$V_{CE} = 30V, I_B = 0$	-	-	500	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = 5V, I_C = 0$	-	-	50	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 1V, I_C = 0.1mA$	40	-	-	-
	$h_{FE(2)}$	$V_{CE} = 1V, I_C = 1mA$	70	-	-	-
	$h_{FE(3)}$	$V_{CE} = 1V, I_C = 10mA$	100	-	300	-
	$h_{FE(4)}$	$V_{CE} = 1V, I_C = 50mA$	60	-	-	-
	$h_{FE(5)}$	$V_{CE} = 1V, I_C = 100mA$	30	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = 10mA, I_B = 1mA$	-	-	0.2	V
		$I_C = 50mA, I_B = 5mA$	-	-	0.3	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = 10mA, I_B = 1mA$	-	-	0.85	V
		$I_C = 50mA, I_B = 5mA$	-	-	0.95	
Transition Frequency	f_T	$V_{CE}=20V, I_C=10mA, f=100MHz$	300	-	-	MHz
Collector Output Capacitance	C_{ob}	$V_{CB} = 5V, I_E = 0, f=1MHz$	-	3.5	-	pF
Noise Figure	NF	$V_{CE}=5V, I_C=0.1mA, f=1kHz, R_S=1K\Omega$	-	-	5	dB
Delay Time	t_d	$V_{CC} = 3V, V_{BE(off)} = -0.5V,$ $I_C = 10mA, I_{B1} = -I_{B2} = 1mA$	-	30	-	nS
Rise Time	t_r		-	30	-	nS
Storage Time	t_s	$V_{CC} = 3V, I_C = 10mA,$ $I_{B1} = -I_{B2} = 1mA$	-	180	-	nS
Fall Time	t_f		-	45	-	nS

Electrical Characteristics of TR2(PNP) (Tamb=25°C unless otherwise noted)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	$I_C = -10\mu A, I_E = 0$	-40	-	-	V
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	$I_C = -1mA, I_B = 0$	-40	-	-	V
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	$I_E = -10\mu A, I_C = 0$	-5	-	-	V
Collector Cut-off Current	I_{CBO}	$V_{CB} = -40V, I_E = 0$	-	-	-100	nA
Emitter Cut-off Current	I_{EBO}	$V_{EB} = -5V, I_C = 0$	-	-	-100	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -1V, I_C = -0.1mA$	60	-	-	-
	$h_{FE(2)}$	$V_{CE} = -1V, I_C = -1mA$	80	-	-	-
	$h_{FE(3)}$	$V_{CE} = -1V, I_C = -10mA$	100	-	300	-
	$h_{FE(4)}$	$V_{CE} = -1V, I_C = -50mA$	60	-	-	-
	$h_{FE(5)}$	$V_{CE} = -1V, I_C = -100mA$	30	-	-	-
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	$I_C = -10mA, I_B = -1mA$	-	-	-0.25	V
		$I_C = -50mA, I_B = -5mA$	-	-	-0.4	
Base-Emitter Saturation Voltage	$V_{BE(sat)}$	$I_C = -10mA, I_B = -1mA$	-	-	-0.85	V
		$I_C = -50mA, I_B = -5mA$	-	-	-0.95	
Transition Frequency	f_T	$V_{CE} = -20V, I_C = -10mA, f = 100MHz$	250	-	-	MHz
Noise Figure	NF	$V_{CE} = -5V, I_C = -0.1mA, f = 1kHz, R_g = 1K\Omega$	-	-	4	dB
Delay Time	t_d	$V_{CC} = -3V, V_{BC} = -0.5V,$ $I_C = -10mA, I_{B1} = I_{B2} = -1mA$	-	-	35	ns
Rise Time	t_r		-	-	35	ns
Storage Time	t_s	$V_{CC} = -3V, I_C = -10mA,$ $I_{B1} = -I_{B2} = -1mA$	-	-	225	ns
Fall Time	t_f		-	-	75	ns

Typical Characteristics of TR1(NPN)

Figure 1. Static Characteristics

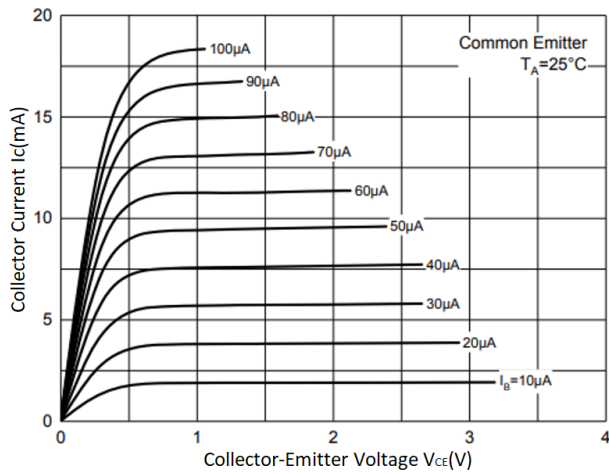


Figure 3. $V_{CE(sat)}$ vs. I_c

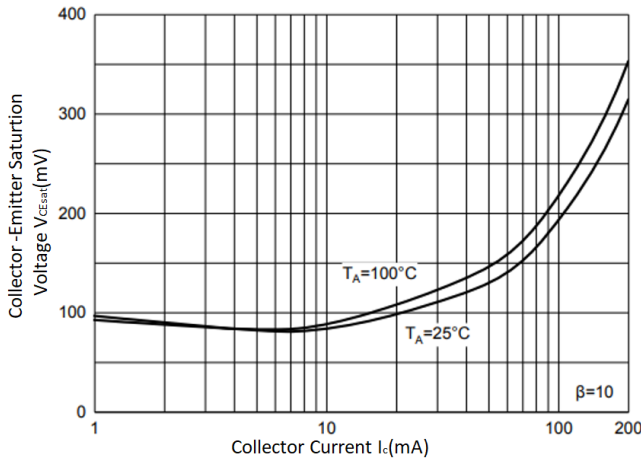


Figure 5. I_c vs. V_{BE}

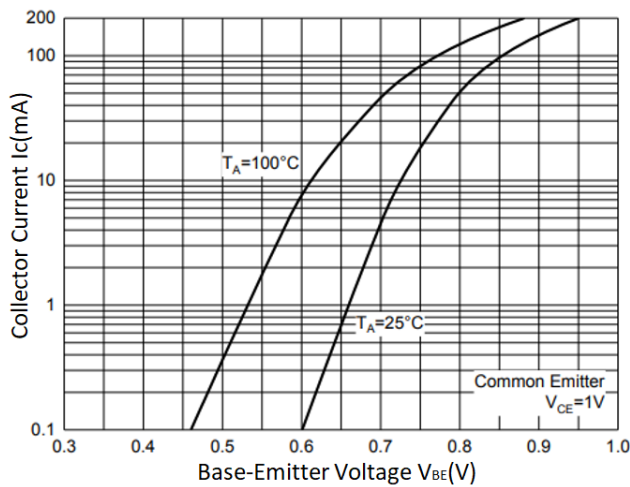


Figure 2. h_{FE} vs. I_c

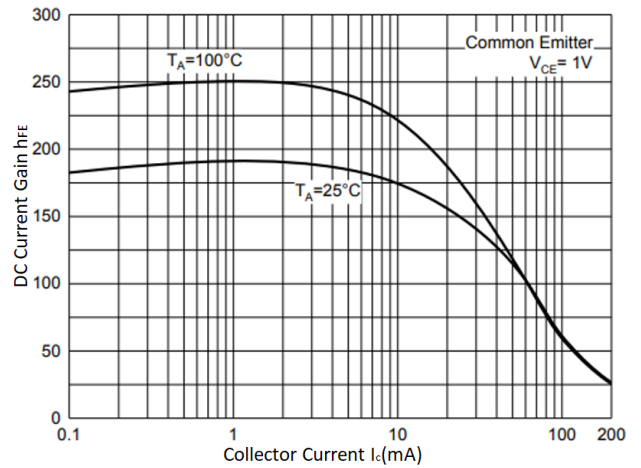


Figure 4. $V_{BE(sat)}$ vs. I_c

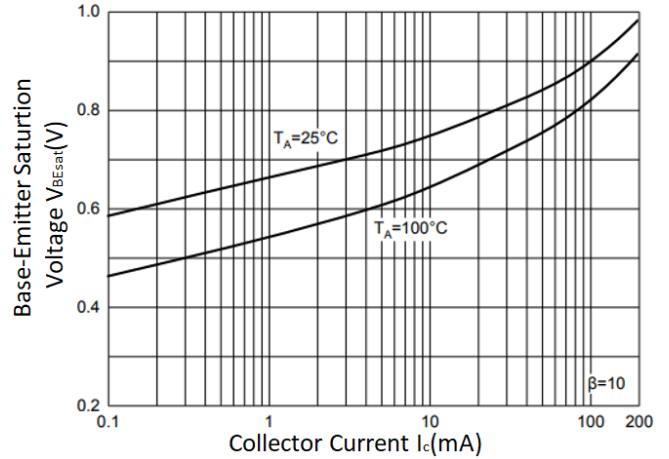
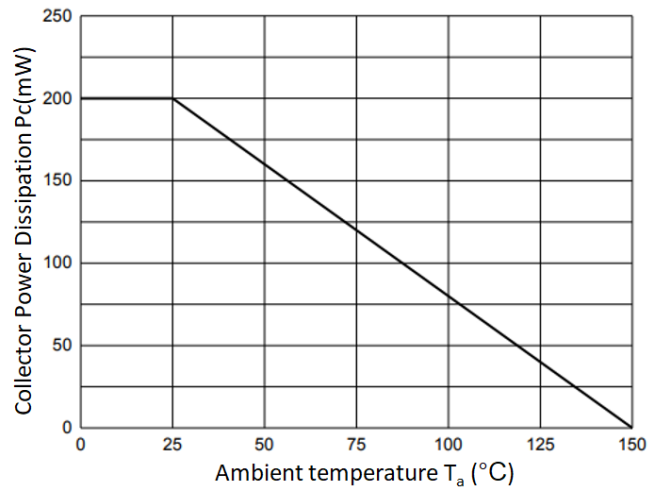


Figure 6. P_c vs. T_a



Typical Characteristics of TR2(PNP)

Figure 1. Static Characteristic

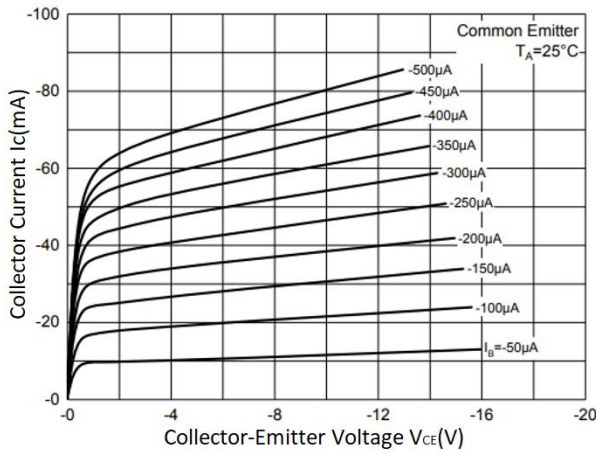


Figure 2. h_{FE} vs. I_C

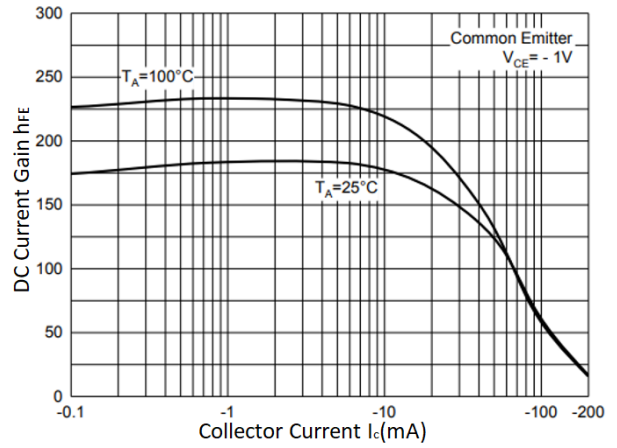


Figure 3. $V_{CE(sat)}$ vs. I_C

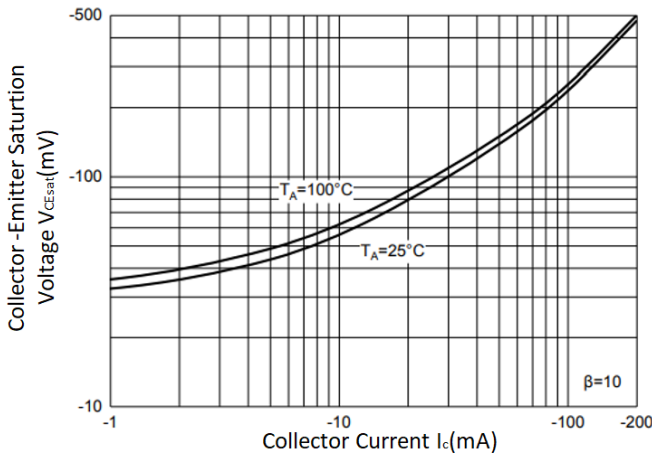


Figure 4. $V_{BE(sat)}$ vs. I_C

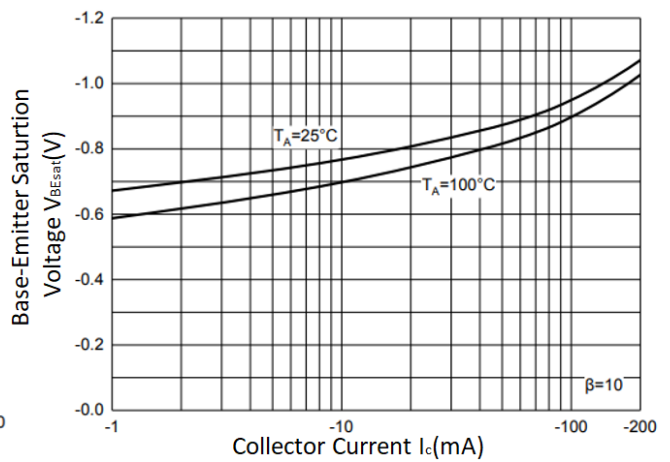


Figure 5. I_C vs. V_{BE}

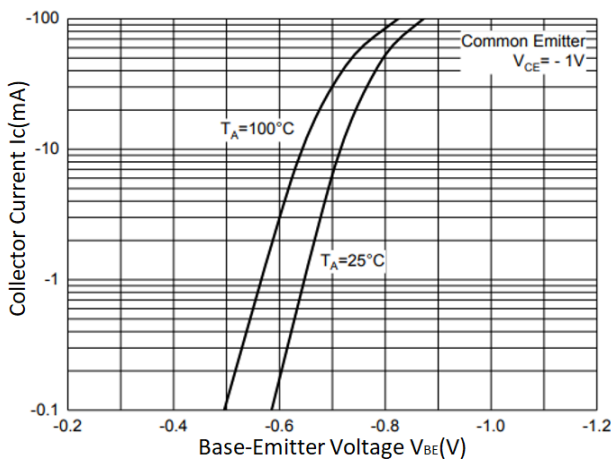
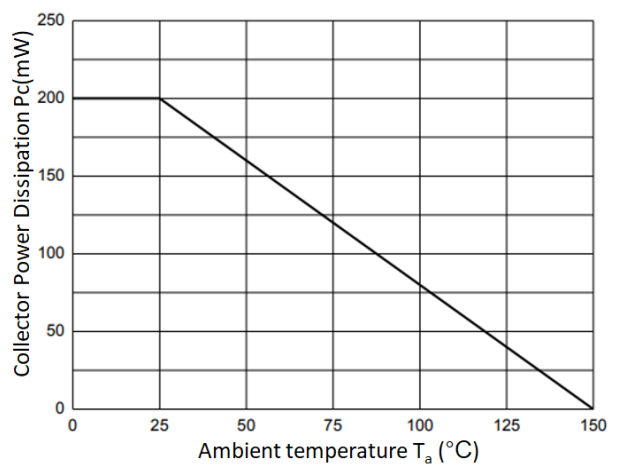


Figure 6. P_C vs. T_a



Outline Drawing – SOT-363-6L

PACKAGE OUTLINE

DIMENSIONS				
SYMBOL	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
D	0.079	0.087	2.000	2.200
E1	0.045	0.053	1.150	1.350
E	0.085	0.096	2.150	2.450
e	0.026 TYP		0.650 TYP	
e1	0.047	0.055	1.200	1.400
L	0.021 REF		0.525 REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

DIMENSIONS		
DIM	INCHES	MILLIMETERS
Z	0.090	2.30
G	0.073	1.85
P	0.020 TYP	0.65 TYP
X	0.008	0.20
Y	0.033	0.85

Notes

1. Dimensioning and tolerances per ANSI Y14.5M, 1985.
2. Controlling Dimension: Inches
3. Dimensions are exclusive of mold flash and metal burrs.

Marking Codes

Part Number	WT3946DW
Marking Code	

Package Information

Qty: 3k/Reel

CONTACT INFORMATION

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Specifications are subject to change without notice.
 The device characteristics and parameters in this data sheet can and do vary in different applications and actual device performance may vary over time.
 Users should verify actual device performance in their specific applications.

单击下面可查看定价，库存，交付和生命周期等信息

[>>WAY-ON\(维安\)](#)