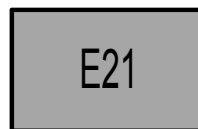
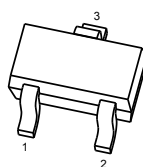


FEATURES

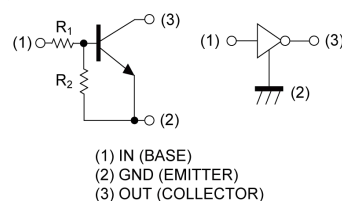
- 1) Built-In Biasing Resistors,
 $R_1 = 1k\Omega$, $R_2 = 10k\Omega$
- 2) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see inner circuit) .
- 3) Only the on/off conditions need to be set for operation, making the circuit design easy.
- 4) Complementary PNP Types: DTA113Z series



SOT-23



Equivalent Circuit



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings $T_a = 25^\circ\text{C}$

Parameter		Symbol	Values	Unit
Supply voltage		V_{CC}	50	V
Input voltage		V_{IN}	-5 to 10	V
Output current		I_O	100	mA
Collector current		$I_{C(MAX)}^{*1}$	100	mA
Power dissipation	DTC113ZM	P_D^{*2}	150	mW
	DTC113ZE		150	
	DTC113ZU		200	
	DTC113ZCA		200	
Junction temperature		T_j	150	$^\circ\text{C}$
Range of storage temperature		T_{stg}	-55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

Parameter	Symbol	Conditions	Values			Unit
			Min.	Typ.	Max.	
Input voltage	$V_{I(off)}$	$V_{CC} = 5V, I_O = 100\mu A$	-	-	0.3	V
	$V_{I(on)}$	$V_O = 0.3V, I_O = 20mA$	3.0	-	-	
Output voltage	$V_{O(on)}$	$I_O = 10mA, I_I = 0.5mA$	-	100	300	mV
Input current	I_I	$V_I = 5V$	-	-	7.2	mA
Output current	$I_{O(off)}$	$V_{CC} = 50V, V_I = 0V$	-	-	500	nA
DC current gain	G_I	$V_O = 5V, I_O = 5mA$	33	-	-	-
Input resistance	R_I	-	0.7	1.0	1.3	k Ω
Resistance ratio	R_2/R_1	-	8	10	12	-
Transition frequency	f_T^{*1}	$V_{CE} = 10V, I_E = -5mA,$ $f = 100MHz$	-	250	-	MHz

*1 Characteristics of built-in transistor

*2 Each terminal mounted on a reference land.

RATING AND CHARACTERISTIC CURVES

Fig.1 Input voltage vs. output current (ON characteristics)

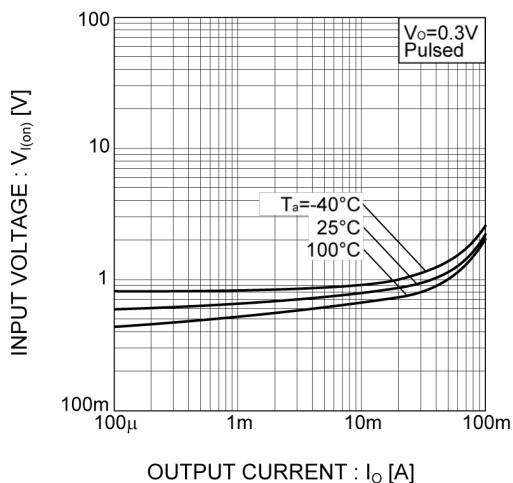


Fig.2 Output current vs. input voltage (OFF characteristics)

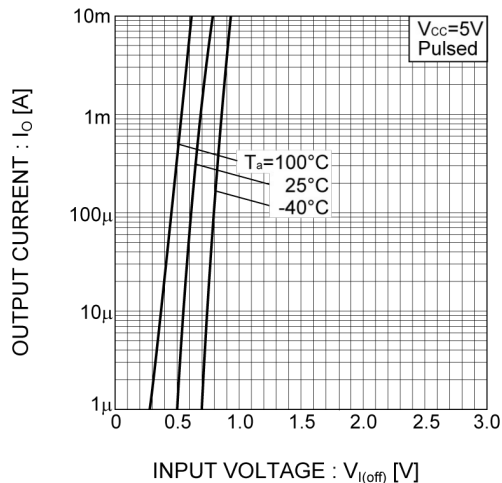


Fig.3 Output current vs. output voltage

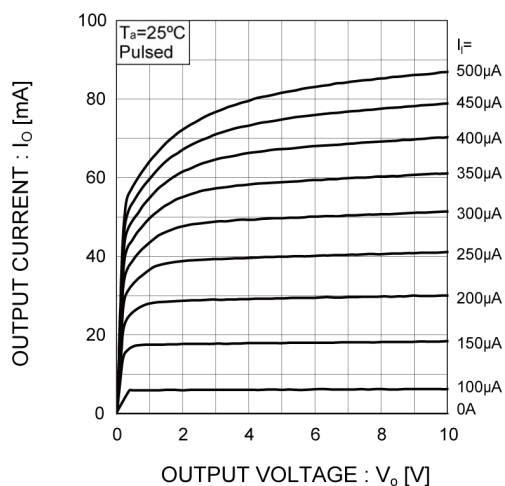


Fig.4 DC current gain vs. output current

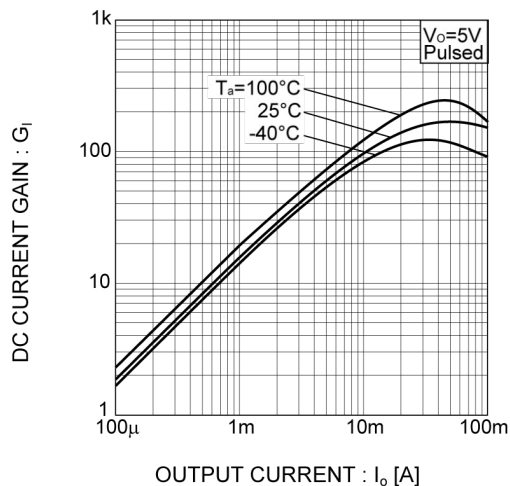
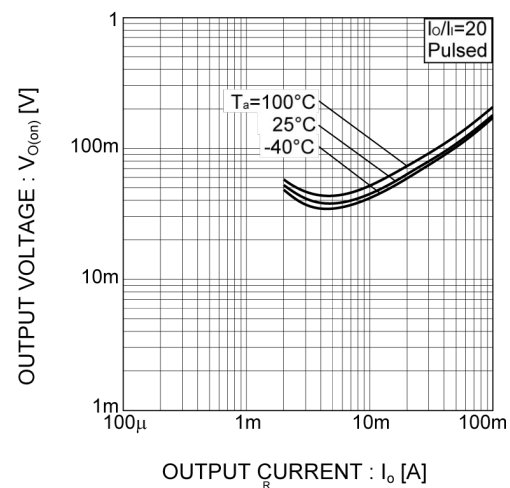
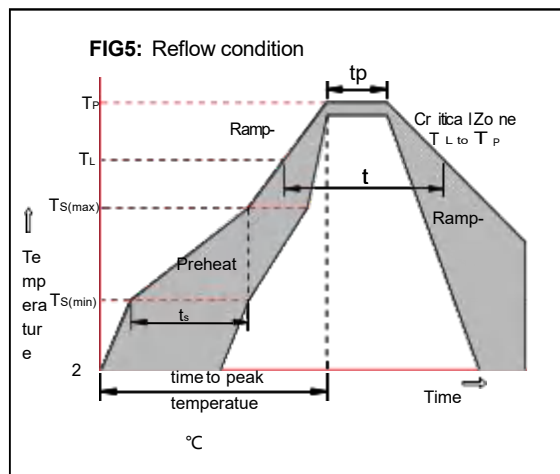


Fig.5 Output voltage vs. output current



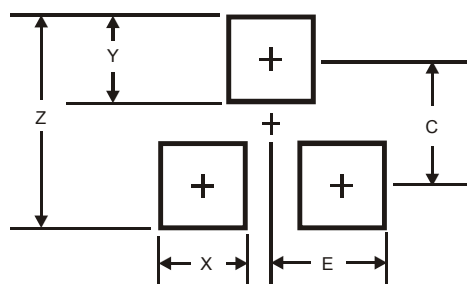
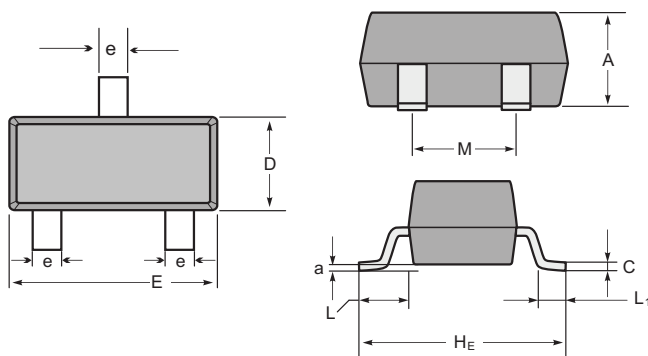
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23



SOT-23 mechanical data

UNIT	A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.0
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7	0.36 (ref)	0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	0.0
	min	35	3	47	110	87	12	67	14 (ref)	6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Technical drawing of a tape component. The top view shows a series of rectangular components with circular features, labeled with dimensions P0, P2, P1, ØD0, and ØD1. The side view shows the profile of the tape with dimensions E, W, F, and K0. The cross-sectional view (SECTION: A-A) shows the internal structure with dimension A0. The section view (SECTION: B-B) shows the profile of the tape with dimensions B0, T, and K0.

Symbol	Dimension (mm)
P0	4.00±0.10
P1	4.00±0.10
P2	2.00±0.10
D0	1.55±0.10
D1	1.05±0.10
E	1.55±0.10
F	3.60±0.10
W	8.00±0.10
A0	3.80±0.20
B0	3.25±0.20
K0	1.45±0.10
T	0.25±0.05
D2	178.0±3.0
D3	55Min.
D4	R24.0±3.0
G	R82.0±3.0
I	13.0±2.0
W1	11.0±3.0

Technical drawing of a 7 inch Reel. The top view shows a circular reel with dimensions D4, G, and I. The side view shows the profile of the reel with dimensions D3, D2, and W1.

Quantity: 3000PCS