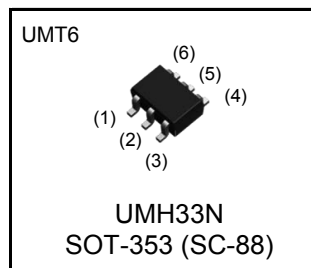


Parameter	Tr1 and Tr2
V_{CEO}	20V
V_{EBO}	40V
I_C	400mA
R_1	2.2k Ω

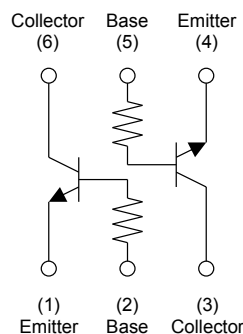
●Outline



●Features

- 1) Built-In Biasing Resistors
- 2) Two DTC923TUB chips in one package.
- 3) High Breakdown Voltage of Emitter to Base
 BV_{EBO} is Min. 40V at $I_E=50\mu A$
- 4) Low Output ON Resistance.
 R_{on} is Typ. 0.6 Ω at $V_I=5V$
- 5) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
- 6) The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of completely eliminating parasitic effects.
- 7) Lead Free/RoHS Compliant.

●Inner circuit



●Application

Muting circuit

●Packaging specifications

Part No.	Package	Package size (mm)	Taping code	Reel size (mm)	Tape width (mm)	Basic ordering unit (pcs)	Marking
UMH33N	UMT6	2021	TR	180	8	3,000	H33

● **Absolute maximum ratings** (Ta = 25°C)

<For Tr1 and Tr2 in common>

Parameter	Symbol	Values	Unit
Collector-base voltage	V_{CBO}	40	V
Collector-emitter voltage	V_{CEO}	20	V
Emitter-base voltage	V_{EBO}	40	V
Collector current	I_C	400	mA
Power dissipation	P_D^{*1}	150 (Total) ^{*2}	mW
Junction temperature	T_j	150	°C
Range of storage temperature	T_{stg}	-55 to +150	°C

● **Electrical characteristics** (Ta = 25°C)

<For Tr1 and Tr2 in common>

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Collector-base breakdown voltage	BV_{CBO}	$I_C = 50\mu A$	40	-	-	V
Collector-emitter breakdown voltage	BV_{CEO}	$I_C = 1mA$	20	-	-	V
Emitter-base breakdown voltage	BV_{EBO}	$I_E = 50\mu A$	40	-	-	V
Collector cut-off current	I_{CBO}	$V_{CB} = 40V$	-	-	500	nA
Emitter cut-off current	I_{EBO}	$V_{EB} = 40V$	-	-	500	nA
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C / I_B = 30mA / 3mA$	-	30	100	mV
DC current gain	h_{FE}	$V_{CE} = 5V, I_C = 10mA$	820	-	2700	-
Input resistance	R_1	-	1.54	2.2	2.86	kΩ
Transition frequency	f_T^{*3}	$V_{CE} = 6V, I_E = -4mA,$ $f = 10MHz$	-	35	-	MHz
Output ON Resistance	R_{on}	$V_I = 5V,$ $R_L = 1k\Omega, f = 1kHz$	-	0.6	-	Ω

*1 Each terminal mounted on a reference footprint

*2 120mW per element must not be exceeded.

*3 Characteristics of built-in transistor

●Electrical characteristic curves(Ta = 25°C)

Fig.1 Grounded emitter propagation characteristics

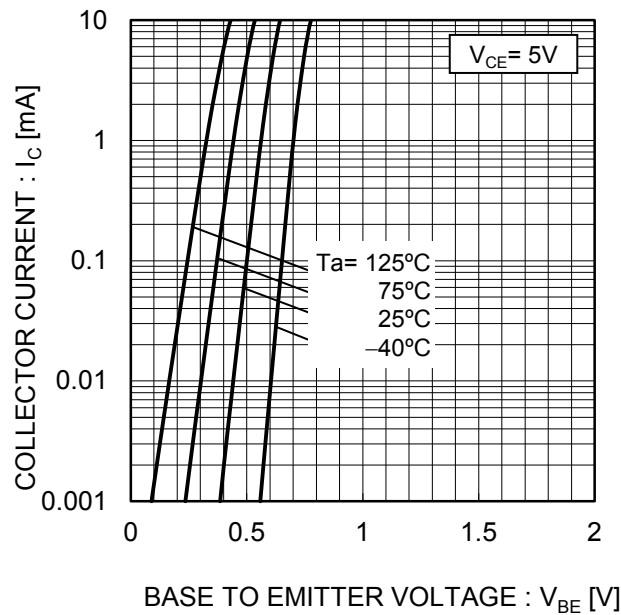


Fig.2 Grounded emitter output characteristics

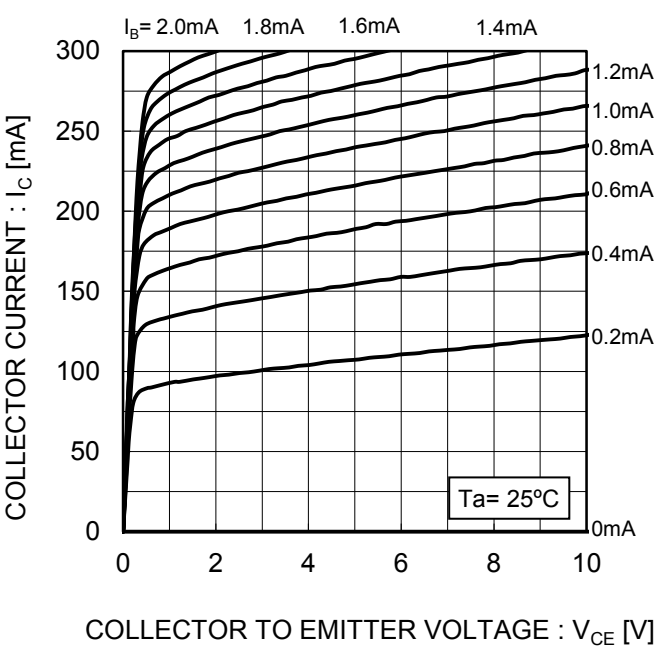


Fig.3 DC Current gain vs. Collector Current

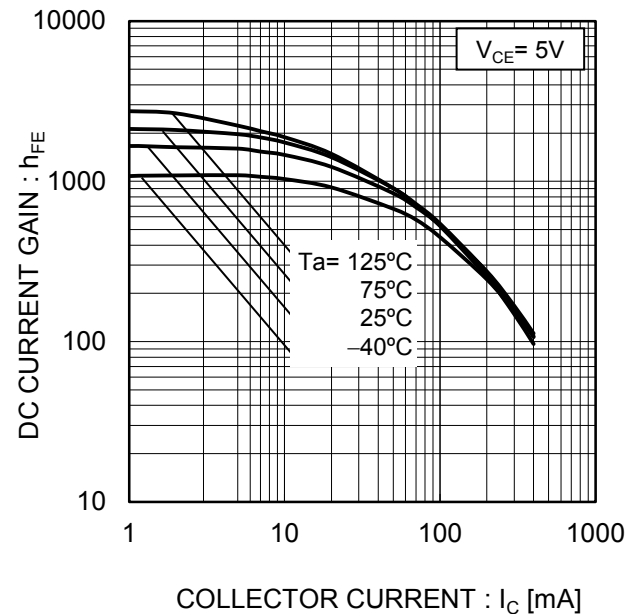
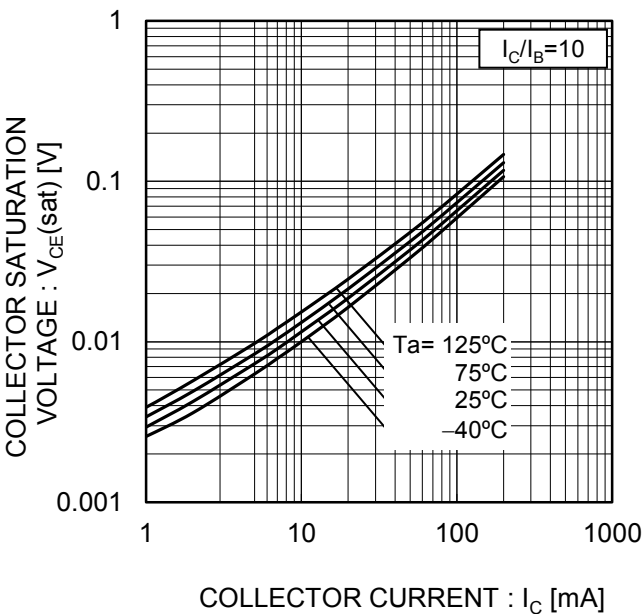


Fig.4 Collector-emitter saturation voltage vs. Collector Current



●Electrical characteristic curves(Ta = 25°C)

Fig.5 Output ON resistance
vs. input voltage

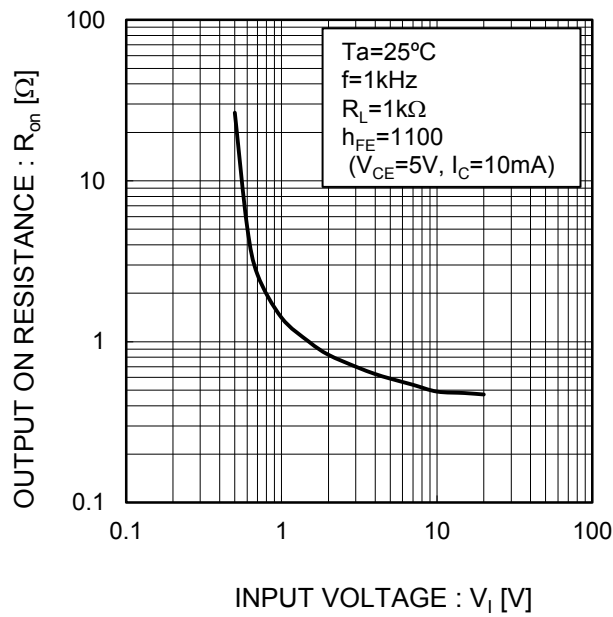
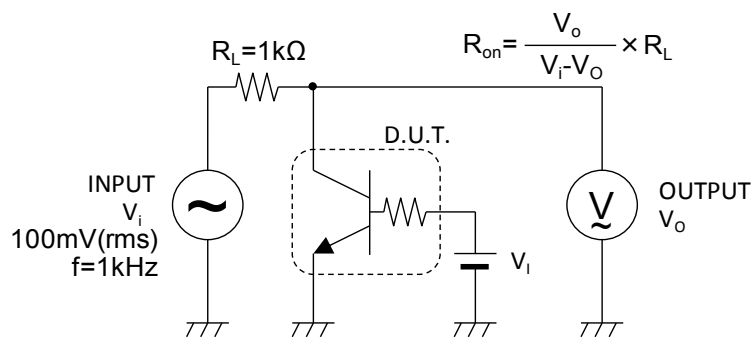
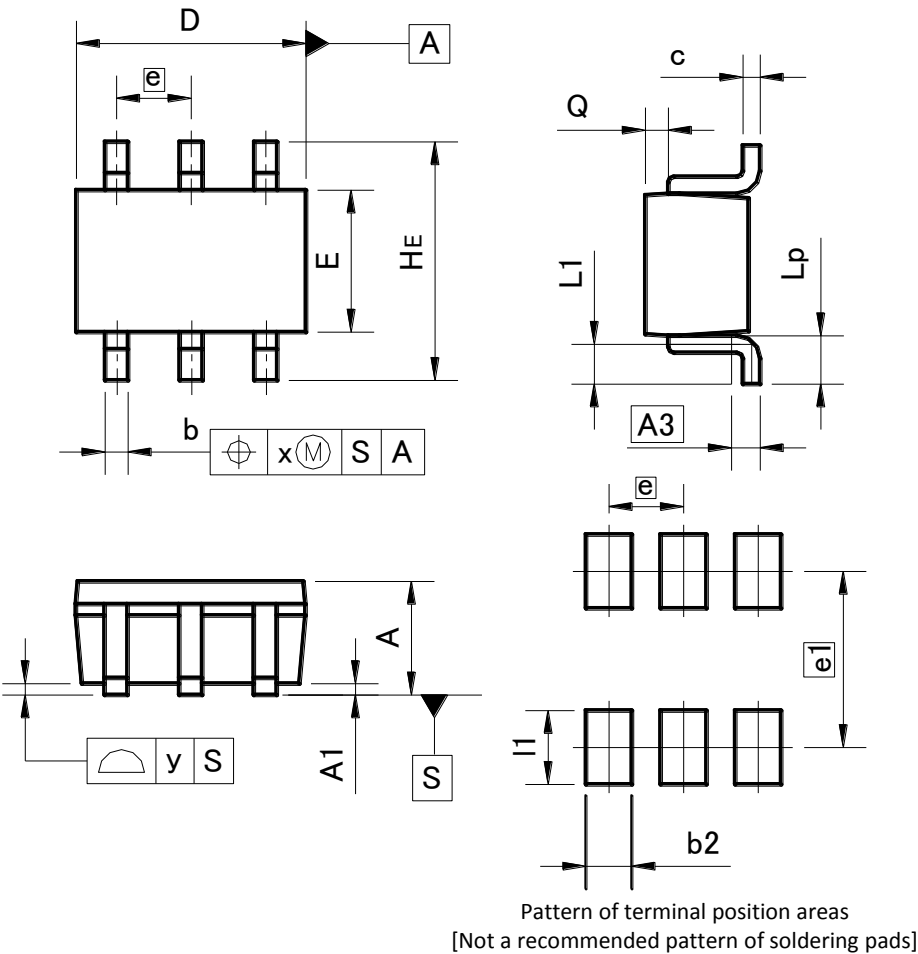


Fig.6 Ron measurement circuit.



●Dimensions (Unit : mm)

UMT6



DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.80	1.00	0.031	0.039
A1	0.00	0.10	0.000	0.004
A3	0.25		0.010	
b	0.15	0.30	0.006	0.012
c	0.10	0.20	0.004	0.008
D	1.90	2.10	0.075	0.083
E	1.15	1.35	0.045	0.053
e	0.65		0.026	
HE	2.00	2.20	0.079	0.087
L1	0.20	0.50	0.008	0.020
Lp	0.25	0.55	0.010	0.022
Q	0.10	0.30	0.004	0.012
x	—	0.10	—	0.004
y	—	0.10	—	0.004

DIM	MILIMETERS		INCHES	
	MIN	MAX	MIN	MAX
b2	—	0.40	—	0.016
e1	1.55		0.061	
l1	—	0.65	—	0.026

Dimension in mm / inches

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