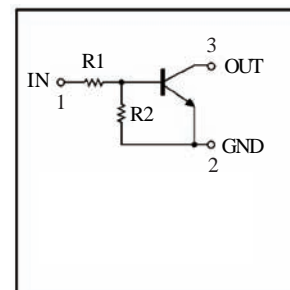
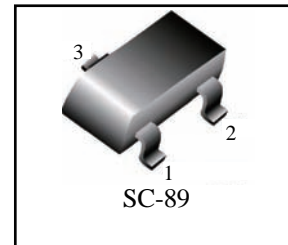


Digital transistors (built-in resistors)

- Features
 - 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see equivalent circuit).
 - 2) The bias resistors consist of thinfilm resistors with complete isolation to allow positive biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
 - 3) Only the on/ off conditions need to be set for operation, making device design easy.
- Structure
NPN digital transistor (with built-in resistors)
- Equivalent circuit
- We declare that the material of product compliance with RoHS requirements.



- Device Marking

Device	Marking	Shipping
DTC503	8B	3000/Tape&Reel

- Absolute maximum ratings($T_a = 25^\circ\text{C}$)

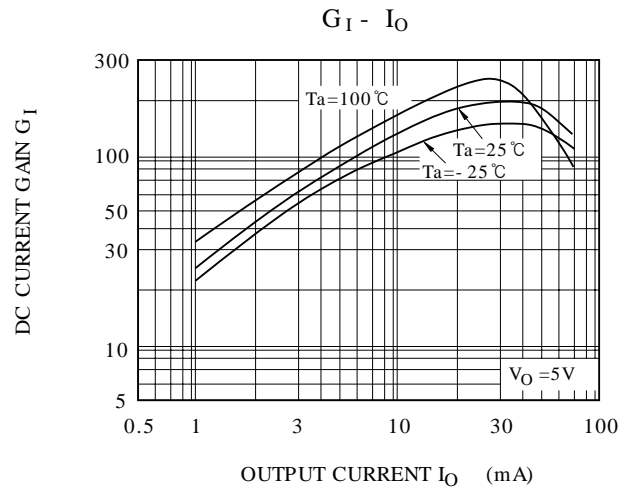
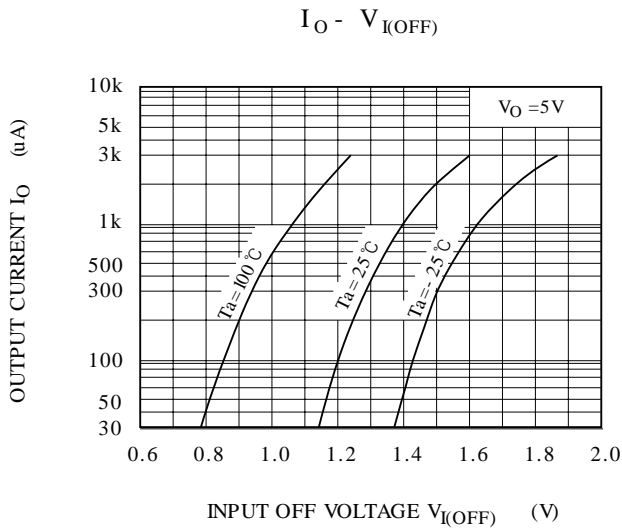
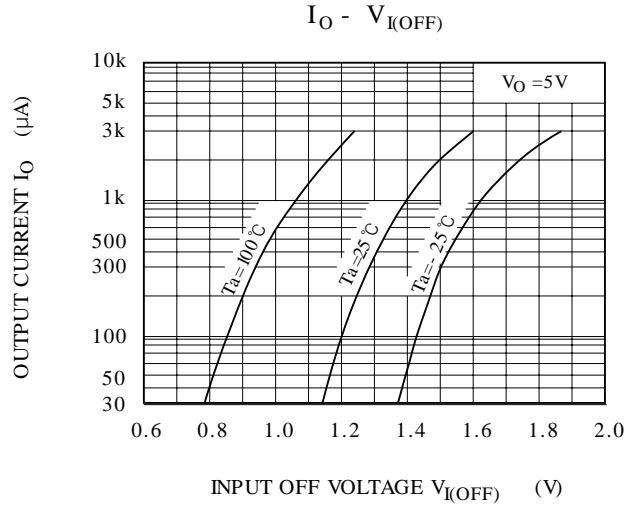
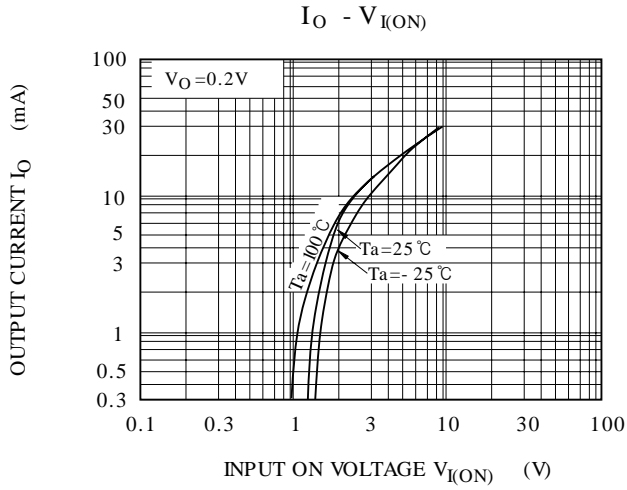
Parameter	symbol	limit	unit
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10~+40	V
Output current	I_O	100	mA
	$I_{C(Max)}$	100	
Power dissipation	P_d	100	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature	T_{stg}	-55~+150	$^\circ\text{C}$

- Electrical characteristics($T_a = 25^\circ\text{C}$)

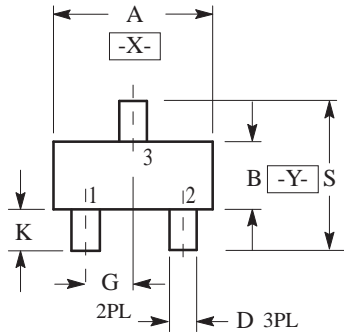
Parameter	symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	$V_{I(off)}$	-	-	0.5	V	$V_{CC} = 5V, I_O = 100\mu\text{A}$
	$V_{I(on)}$	3	-	-		$V_O = 0.3V, I_O = 2\text{mA}$
Output Voltage	$V_{O(on)}$	-	-	0.25	V	$I_O/I_I = 10\text{mA}/0.3\text{mA}$
Input current	I_I	-	-	0.36	mA	$V_I = 5V$
Output current	$I_{O(off)}$	-	-	0.5	μA	$V_{CC} = 50V, V_I = 0V$
DC current gain	G_I	60	-	-	-	$V_O = 5V, I_O = 5\text{mA}$
Input resistance	R_I	15.4	22	28.6	K Ω	-
Resistance ratio	R_2 / R_1	0.8	1	1.2	-	-
Transition frequency	f_T	-	250	-	MHz	$V_{CE} = 10V, I_E = -5\text{mA}, f = 100\text{MHz}^*$

*Transition frequency of the device

ELECTRICAL CHARACTERISTIC CURVES



SC-89

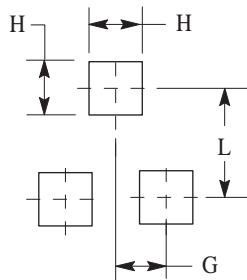
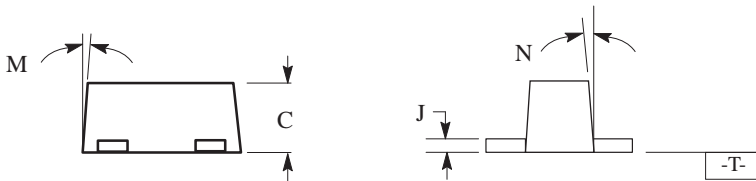


⊕	0.08 (0.003) (M)	X	Y
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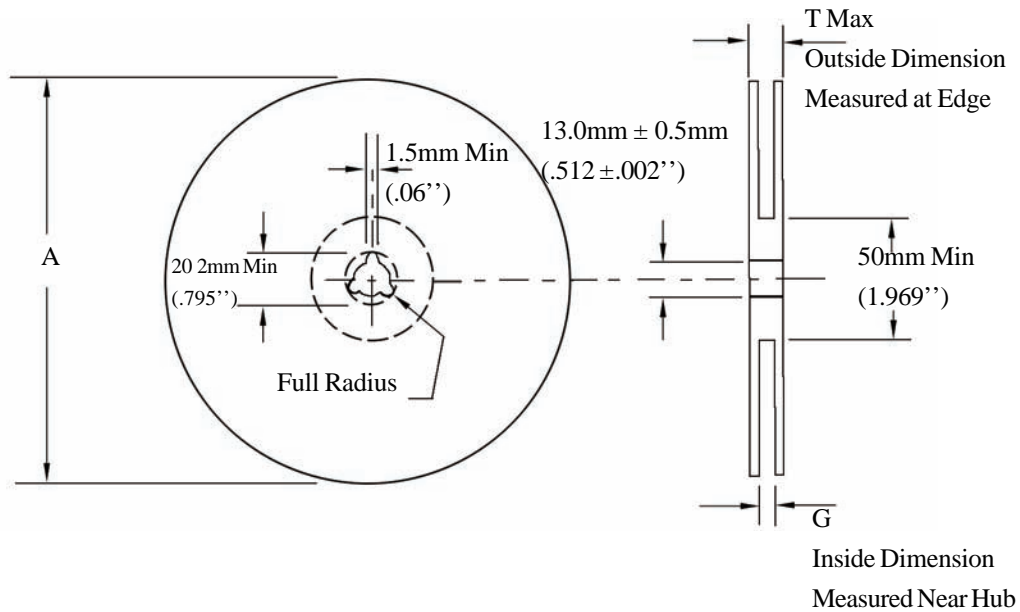
NOTES:

1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: MILLIMETERS
3. MAXIMUM LEAD THICKNESS INCLUDES LEAD FINISH THICKNESS. MINIMUM LEAD THICKNESS IS THE MINIMUM THICKNESS OF BASE MATERIAL.
4. 463C-01 OBSOLETE, NEW STANDARD 463C-02.

DIM	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	1.50	1.60	1.70	0.059	0.063	0.067
B	0.75	0.85	0.95	0.030	0.034	0.040
C	0.60	0.70	0.80	0.024	0.028	0.031
D	0.23	0.28	0.33	0.009	0.011	0.013
G	0.50BSC			0.020BSC		
H	0.53RBF			0.021RBF		
J	0.10	0.15	0.20	0.004	0.006	0.008
K	0.30	0.40	0.50	0.012	0.016	0.020
L	1.10RBF			0.043RBF		
M	-	-	10°	-	-	10°
N	-	-	10°	-	-	10°
S	1.50	1.60	1.70	0.059	0.063	0.067



EMBOSSED TAPE AND REEL DATA FOR DISCRETES



Size	A Max	G	T Max
8 mm	330mm (12.992'')	8.4mm+1.5mm, -0.0 (.33''+.059'', -0.00)	14.4mm (.56'')

Reel Dimensions

Metric Dimensions Govern — English are in parentheses for reference only

Storage Conditions

Temperature: 5 to 40 Deg.C (20 to 30 Deg. C is preferred)
 Humidity: 30 to 80 RH (40 to 60 is preferred)
 Recommended Period: One year after manufacturing
 (This recommended period is for the soldering condition only. The characteristics and reliabilities of the products are not restricted to this limitation)