

Digital transistors (built-in resistors)

●Features

- 1) Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors (see the equivalent circuit).
- 2) The bias resistors consist of thin-film resistors with complete isolation to allow negative 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)

- We declare that the material of product compliance with RoHS requirements.

ORDERING INFORMATION

Device	Marking	Shipping
LDTC143XLT1G	43	3000 Tape & Reel
LDTC143XLT3G	43	10000 Tape & Reel

●Absolute maximum ratings (Ta=25°C)

Parameter	Symbol	LDTC143XKALT1G	Unit
Supply voltage	V _{CC}	50	V
Input voltage	V _{IN}	-7~+20	V
Output current	I _O	100	mA
	I _{C(Max.)}	100	
Power dissipation	P _d	200	mW
Junction temperature	T _J	150	°C
Storage temperature	T _{stg}	-55~+150	°C

●Electrical characteristics (Ta=25°C)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Input voltage	V _{I(off)}	—	—	0.3	V	V _{CC} =5V, I _O =100μA
	V _{I(on)}	2.5	—	—		V _O =0.3V, I _O =20mA
Output voltage	V _{O(on)}	—	0.1	0.3	V	I _O /I _I =10mA/0.5mA
Input current	I _I	—	—	1.8	mA	V _I =5V
Output current	I _{O(off)}	—	—	0.5	μA	V _{CC} =50V, V _I =0V
DC current gain	G _I	30	—	—	—	V _O =5V, I _O =10mA
Input resistance	R _I	3.29	4.7	6.11	kΩ	—
Resistance ratio	R _Z /R _I	1.7	2.1	2.6	—	—
Transition frequency	f _T	—	250	—	MHz	V _{CE} =10V, I _E =-5mA, f=100MHz *

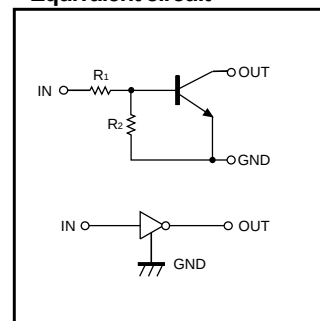
* Transition frequency of the device

LDTC143XLT1G



CASE 318, STYLE 21
SOT-23 (TO-236AB)

●Equivalent circuit



LDTTC143XLT1G

Electrical characteristic curves

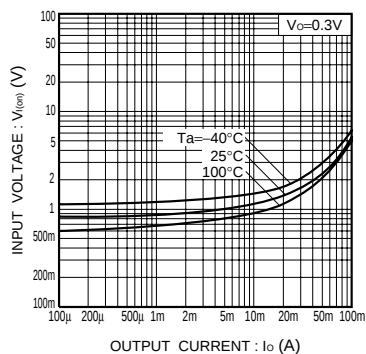


Fig.1 Input voltage vs. output current (ON characteristics)

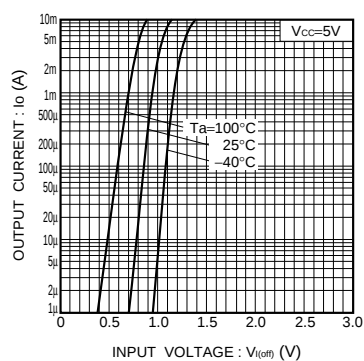


Fig.2 Output current vs. input voltage (OFF characteristics)

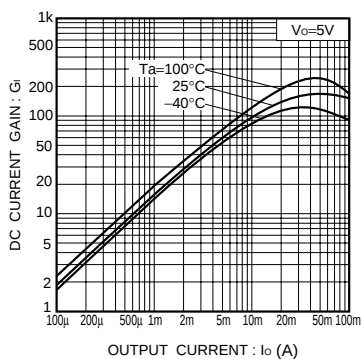


Fig.3 DC current gain vs. output current

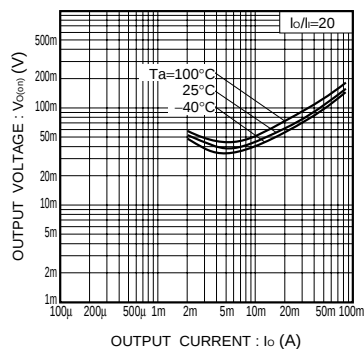


Fig.4 Output voltage vs. output current

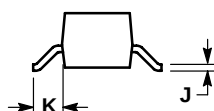
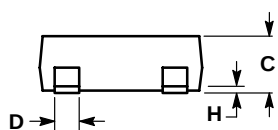
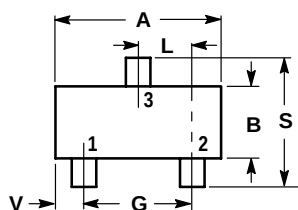
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LDTC143XLT1G

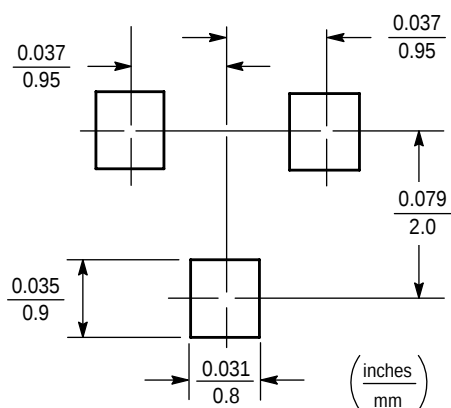
SOT-23

NOTES:

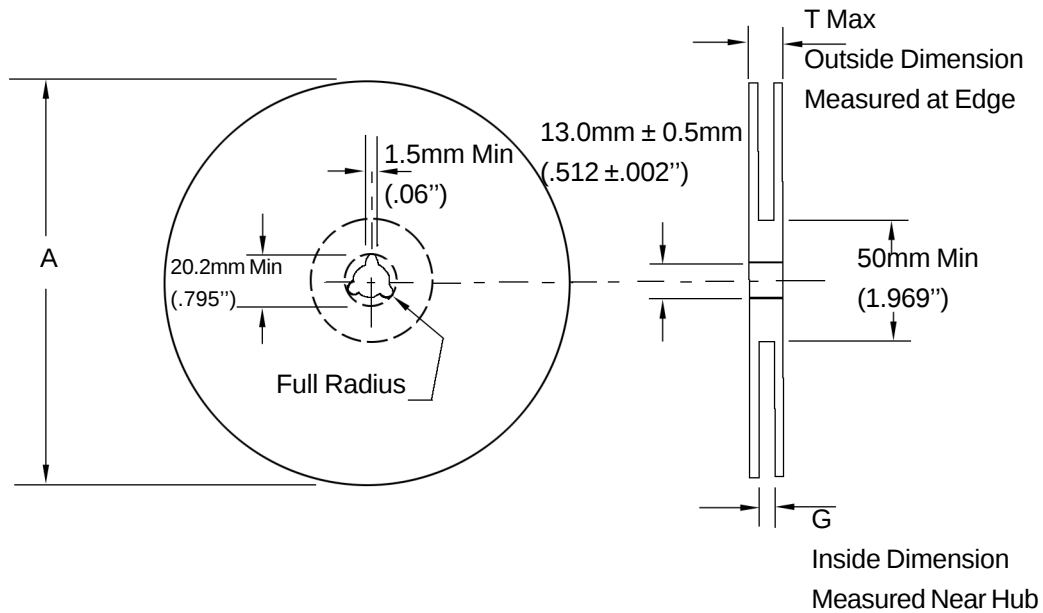
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M,1982
2. CONTROLLING DIMENSION: INCH.



DIM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	0.1102	0.1197	2.80	3.04
B	0.0472	0.0551	1.20	1.40
C	0.0350	0.0440	0.89	1.11
D	0.0150	0.0200	0.37	0.50
G	0.0701	0.0807	1.78	2.04
H	0.0005	0.0040	0.013	0.100
J	0.0034	0.0070	0.085	0.177
K	0.0140	0.0285	0.35	0.69
L	0.0350	0.0401	0.89	1.02
S	0.0830	0.1039	2.10	2.64
V	0.0177	0.0236	0.45	0.60



EMBOSED 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)

Shipment Specification

