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TPDTC143EKA

NPN Digital Transistor

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Features

* Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors.
* 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.
* Only the on/off conditions need to be set for operation marking device design easy.

Mechanical data

* Case: Molded plastic
* Epoxy: UL 94V-O rate flame retardant
* Lead: MIL-STD-202E method 208C guaranteed
* Mounting position: Any
* Weight: 0.009 gram

SOT23



1.IN
2.GND
3.OUT

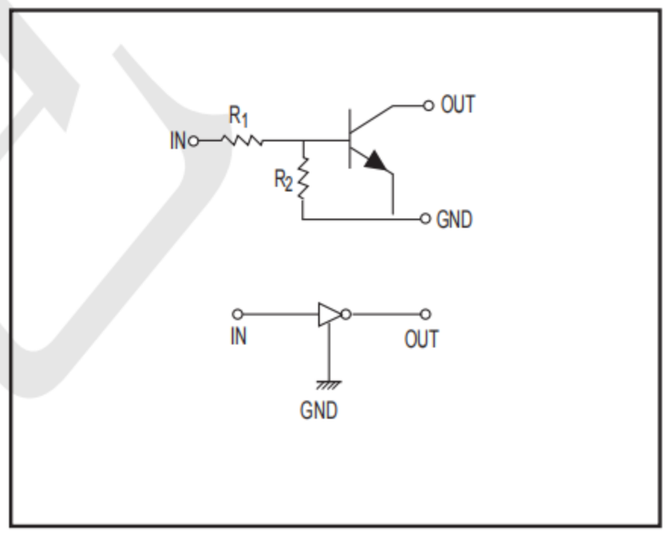


Figure5 Equivalent circuit

Absolute Maximum Ratings (Tamb=25°C unless otherwise specified)

RATINGS	SYMBOL	LIMITS	UNITS
Supply voltage	V_{CC}	50	V
Input voltage	V_{IN}	-10~+30	V
Output current	I_O	100	mA
	$I_{C(MAX)}$	100	
Power dissipation	Pd	200	mW
Junction temperature	Tj	150	°C
Storage temperature	Tstg	-55 ~150	°C

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Electrical Characteristics (TA=25°C unless otherwise specified)

CHARACTERISTICS	SYMBOL	MIN	TYP	MAX	UNITS
Input voltage (V_{CC}= 5V, I_O= 100μA)	$V_{I(off)}$	-	-	0.5	V
Input voltage (V_O= 0.3V, I_O= 20mA)	$V_{I(on)}$	3	-	-	
Output voltage (I_O / I_I= 10mA / 0.5mA)	$V_{o(on)}$	-	-	0.3	V
Input current (V_I= 5V)	I_I	-	-	1.8	mA
Output current (V_{CC}= 50V,V_I= 0)	$I_{o(off)}$	-	-	0.5	μA
DC current gain (V_O= 5V,I_O= 10mA)	G_I	20	-	-	-
Input resistance	R_1	3.29	4.7	6.11	KΩ
Resistance ratio	R_2 / R_1	0.8	1	1.2	-
Transition frequency (V_O= 10V,I_O= 5mA, f= 100MHz)	f_T	-	250	-	MHz

Typical Performance Characteristics (T_A=25°C unless otherwise Specified)

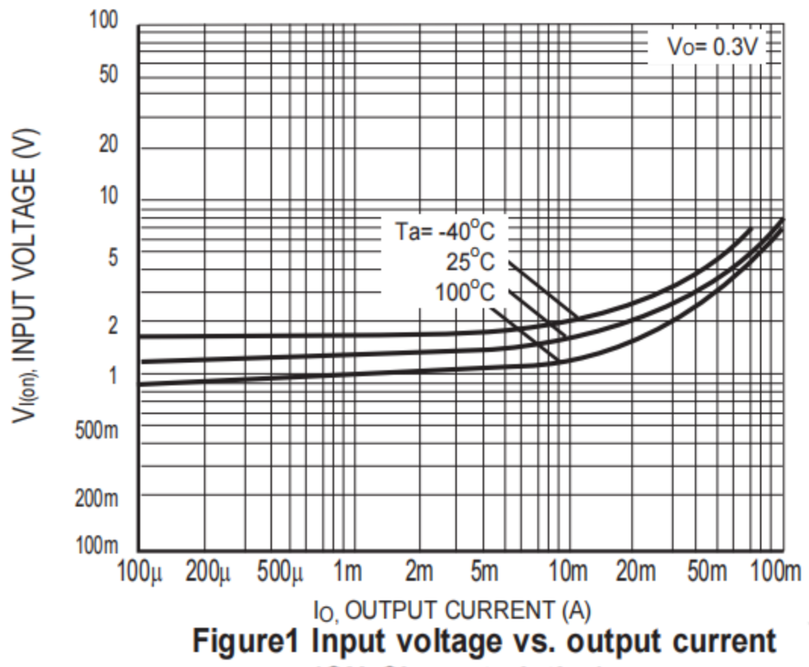


Figure1 Input voltage vs. output current (ON Characteristics)

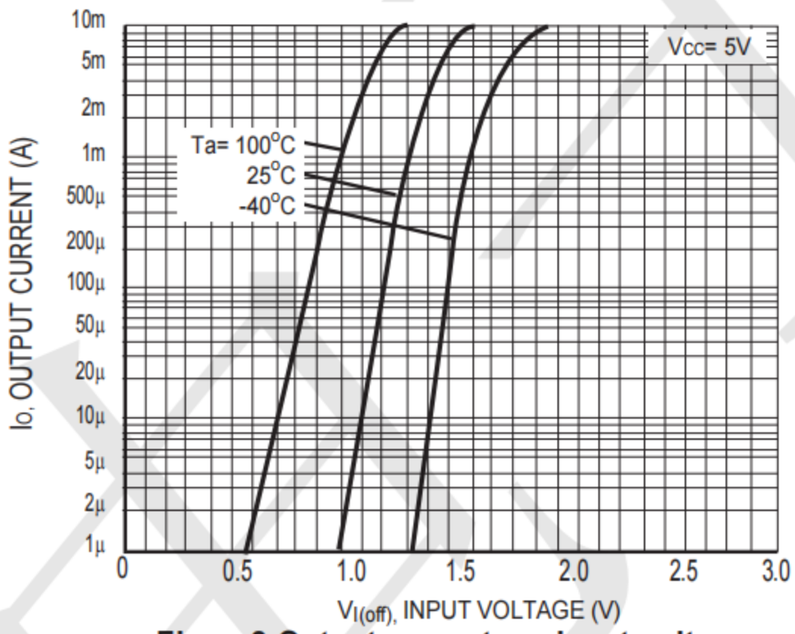


Figure2 Output current vs. input voltage (OFF Characteristics)

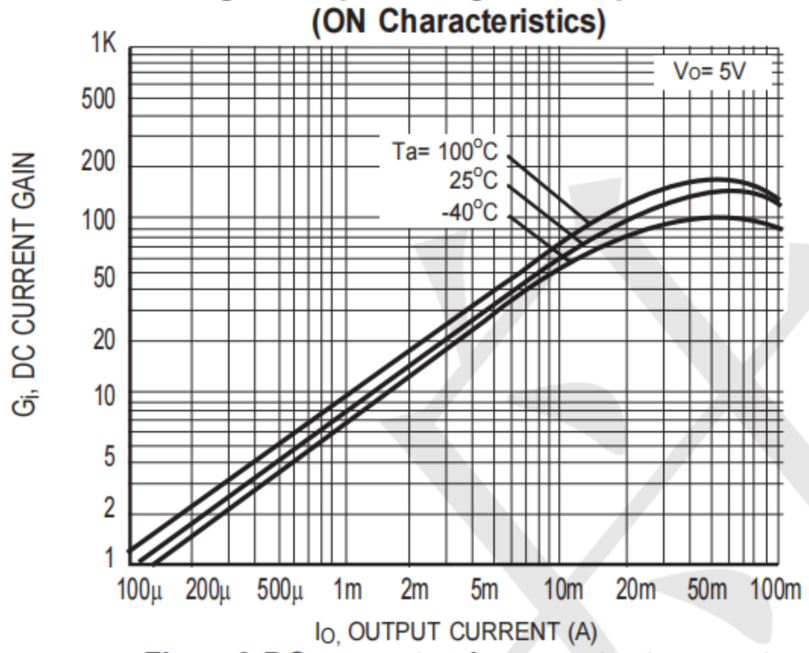


Figure3 DC current gain vs. output current

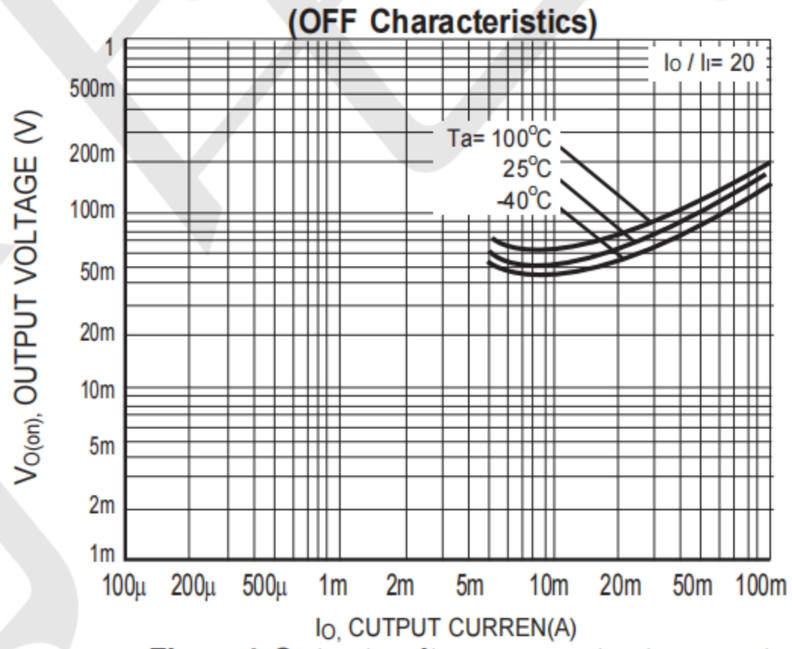
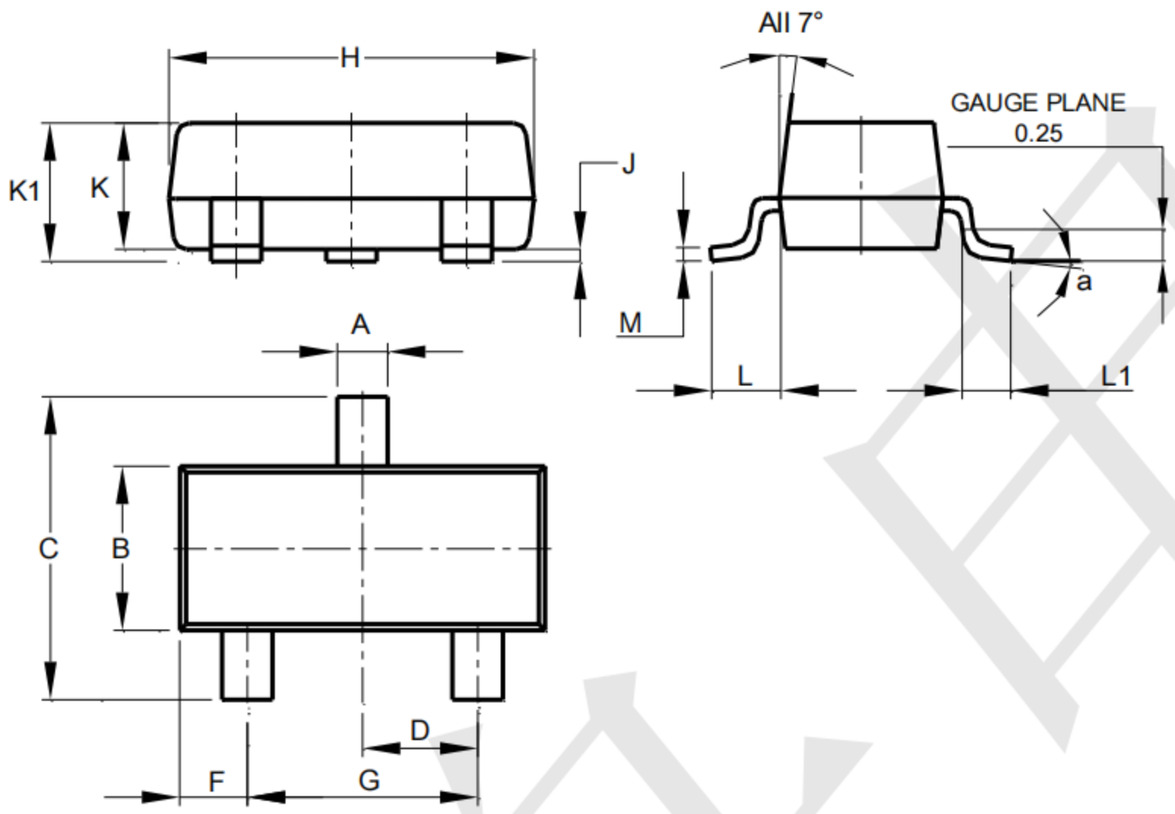


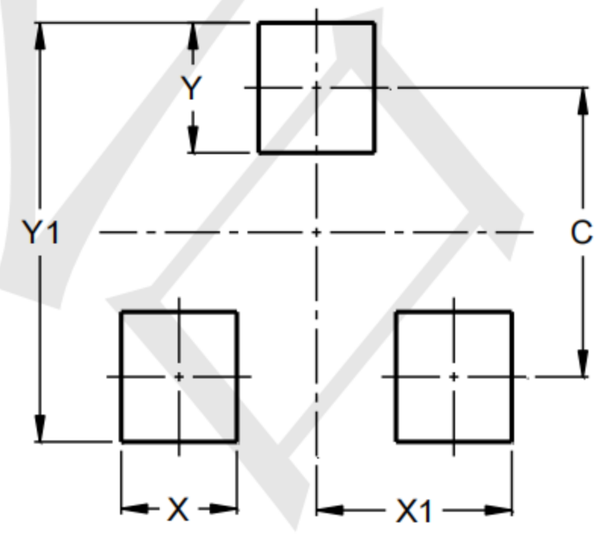
Figure4 Output voltage vs. output current

Outline Drawing - SOT23



SOT23			
Dim	Min	Max	Typ
A	0.37	0.51	0.40
B	1.20	1.40	1.30
C	2.30	2.50	2.40
D	0.89	1.03	0.915
F	0.45	0.60	0.535
G	1.78	2.05	1.83
H	2.80	3.00	2.90
J	0.013	0.10	0.05
K	0.890	1.00	0.975
K1	0.903	1.10	1.025
L	0.45	0.61	0.55
L1	0.25	0.55	0.40
M	0.085	0.150	0.110
a	0°	8°	--
All Dimensions in mm			

Land Pattern - SOT23



Dimensions	Value (in mm)
C	2.0
X	0.8
X1	1.35
Y	0.9
Y1	2.9