

FEATURES

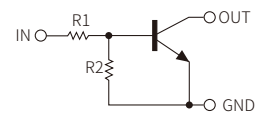
- | Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit)
- | The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input.They also have the advantage of almost completely eliminating parasitic effects
- | Only the on/off conditions need to be set for operation, making device design easy
- | Meet AEC-Q101 Requirements



SOT-23



Marking



Schematic Symbol

APPROVALS

RoHS	Compliance with 2011/65/EU
HF	Compliance with IEC61249-2-21:2003

MAXIMUM RATINGS ($T_A=25^{\circ}\text{C}$)

Parameter	Symbol	Value	Unit
Supply Voltage	V_{CC}	50	V
Input Voltage	V_{IN}	-5 to +30	V
Output Current	I_O	100	mA
Power Dissipation	P_D	200	mW
Operation Junction and Storage Temperature Range	T_J, T_{stg}	-55 to +150	$^{\circ}\text{C}$

ELECTRICAL CHARACTERISTICS ($T_A=25^\circ\text{C}$)

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
Input voltage	$V_{I(\text{off})}$	$V_{CC}=5\text{V}, I_o=100\mu\text{A}$			0.5	V
	$V_{I(\text{on})}$	$V_o=0.3\text{V}, I_o=5\text{mA}$	1.3			V
Output voltage	$V_{O(\text{on})}$	$I_o/I_1=5\text{mA}/0.25\text{mA}$			0.3	V
Input current	I_1	$V_i=5\text{V}$			1.8	mA
Output current	$I_{O(\text{off})}$	$V_{CC}=50\text{V}, V_i=0$			0.5	μA
DC current gain	G_1	$V_o=5\text{V}, I_o=10\text{mA}$	80			
Input resistance	R_1		3.29	4.7	6.11	$\text{k}\Omega$
Resistance ratio	R_2/R_1		8	10	12	
Transition frequency	f_T	$V_o=10\text{V}, I_o=5\text{mA}, f=100\text{MHz}$		250		MHz

CHARACTERISTIC CURVES

Fig.1 ON Characteristics

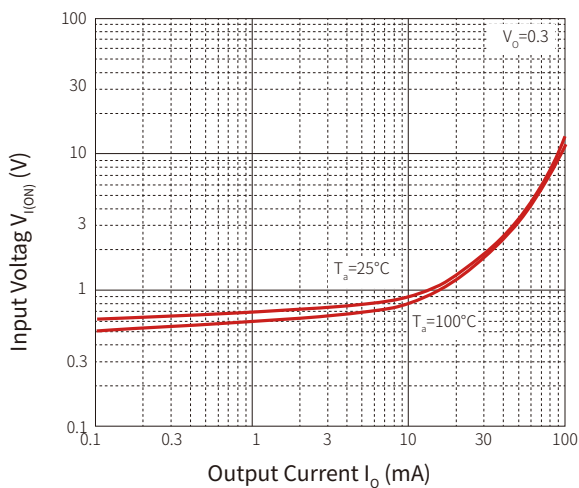


Fig.2 OFF Characteristics

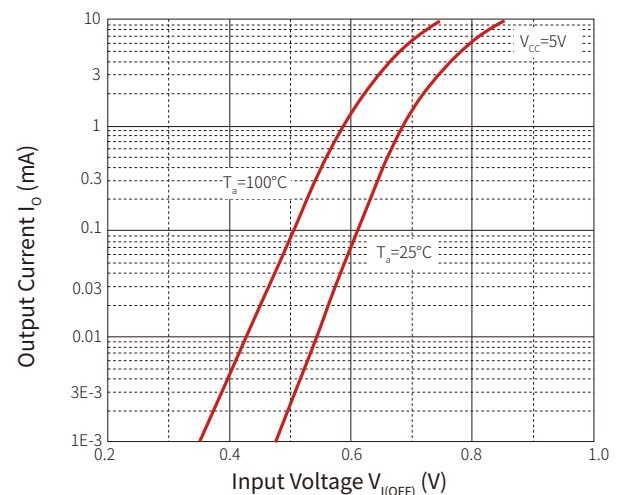


Fig.3 G_1 — I_o

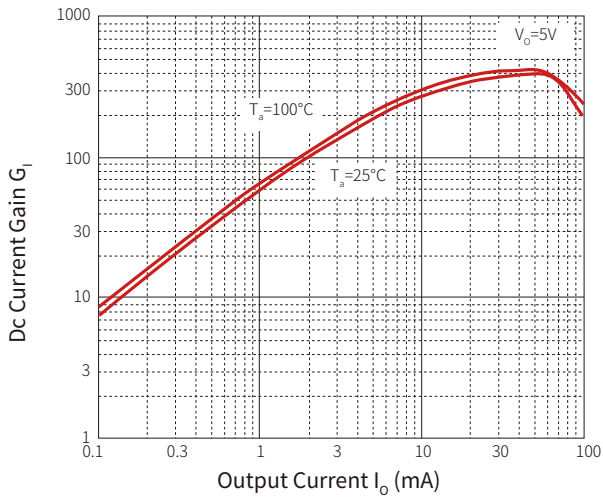


Fig.4 $V_{o(on)}$ — I_o

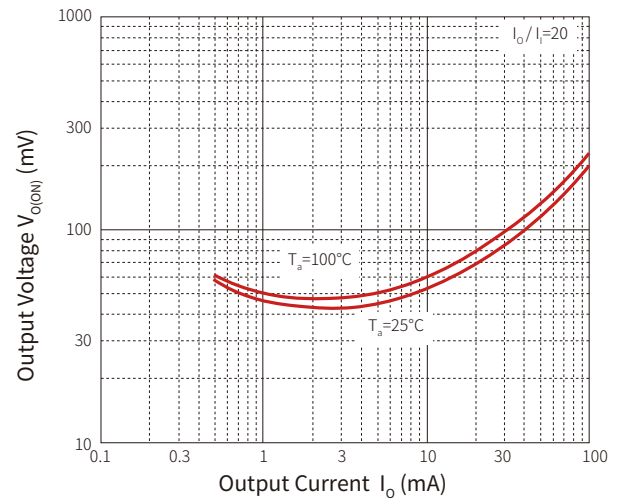


Fig.5 C_o — V_R

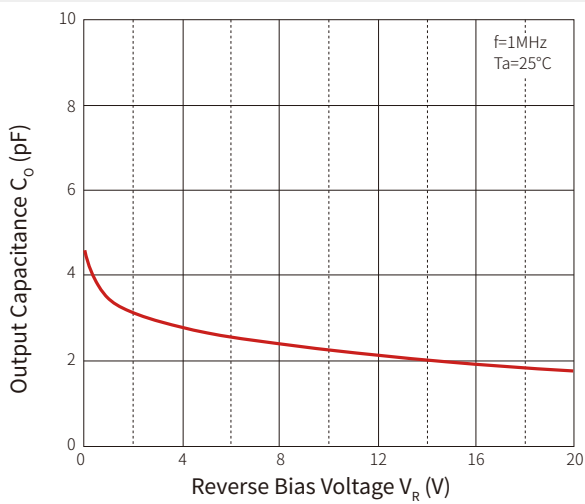
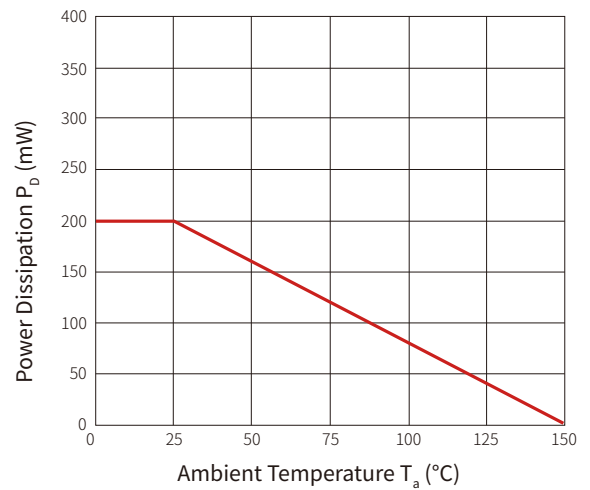
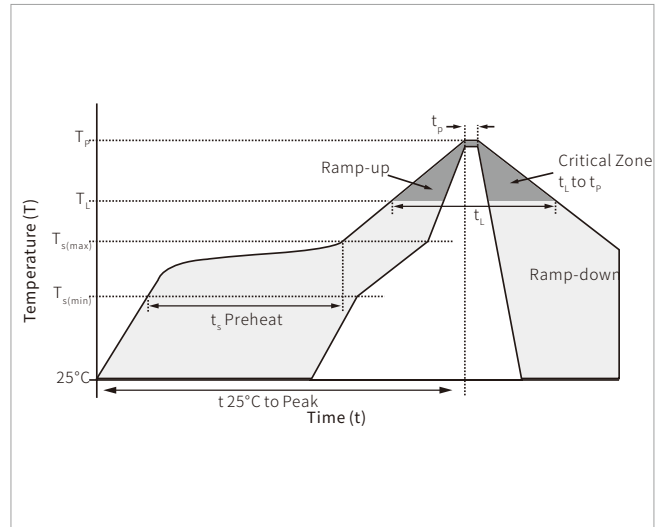


Fig.6 P_D — T_a

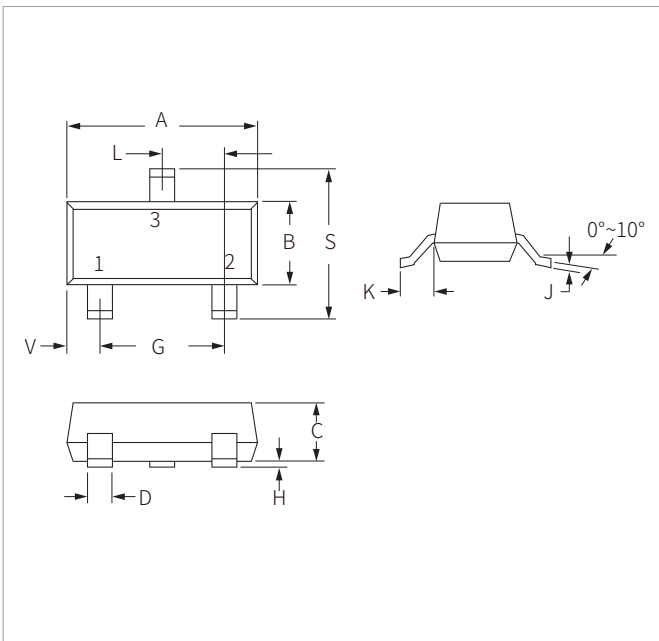


SOLDERING PARAMETERS

Reflow Condition		Lead-free assembly
Pre Heat	Temperature Max ($T_{s(min)}$)	150°C
	Temperature Max ($T_{s(max)}$)	200°C
	Time (min to max) (t_s)	60 – 180 secs
Average ramp up rate (Liquidus Temp (T_L) to peak)		3°C/second max
Reflow	$T_{s(max)}$ to T_L - Ramp-up Rate	3°C/second max
	Temperature (T_L) (Liquidus)	217°C
	Time (min to max) (t_l)	60 – 150 seconds
Peak Temperature (T_p)		260°C
Time within 5°C of actual peak Temperature (t_p)		20 – 40 seconds
Ramp-down Rate		6°C/second max
Time 25°C to peak Temperature (T_p)		8 minutes max.
Do not exceed		260°C

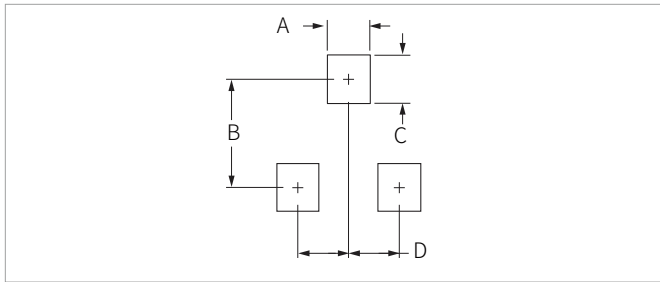


SOT-23 PACKAGE INFORMATION



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	2.80	3.05	0.110	0.120
B	1.20	1.40	0.047	0.055
C	0.90	1.15	0.035	0.045
D	0.37	0.50	0.015	0.020
G	1.75	2.05	0.069	0.081
H	0.01	0.100	0.001	0.004
J	0.085	0.180	0.003	0.007
K	0.35	0.69	0.014	0.029
L	0.89	1.02	0.035	0.040
S	2.10	2.65	0.083	0.104
V	0.45	0.60	0.018	0.024

RECOMMENDED PAD LAYOUT DIMENSIONS



Ref.	Millimeters		Inches	
	Min.	Max.	Min.	Max.
A	0.71	0.97	0.028	0.038
B	1.88	2.13	0.074	0.084
C	0.71	0.97	0.028	0.038
D	0.81	1.07	0.032	0.042

ORDERING INFORMATION

Part Number	Component Package	QTY/Reel	Reel Size
DTC143ZCAQ	SOT-23	3000PCS	7"

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By QR Code

Website



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