

SOT-23 Plastic-Encapsulate Transistors(NPN)

Features

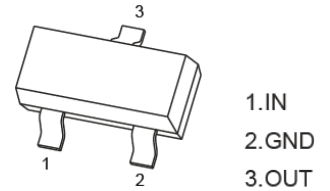
- Built-in bias resistors enable the configuration of an inverter circuit without connecting external input resistors(see equivalent circuit).
- The bias resistors consist of thin-film resistors with complete isolation to allow negative biasing of the input. They also have the advantage of almost completely eliminating parasitic effects.
- Only the on/off conditions need to be set for operation, making device design easy.
- AEC-Q 101 qualified (Automotive grade with suffix "Q").
- Expsemi electronics.

Mechanical Data

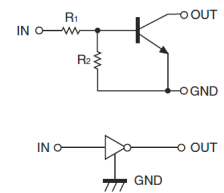
- SOT-23 Small Outline Plastic Package
- Epoxy UL: 94V-0
- Mounting Position: Any

MARKING: 43

SOT-23



Equivalent Circuit



Maximum Ratings & Thermal Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

Parameters	Symbol	Value	Unit
Supply Voltage	V _{CC}	50	V
Input Voltage	V _{IN}	-7~+20	V
Output Current	I _O	100	mA
Power Dissipation	P _C	200	mW
Junction Temperature	T _j	150	°C
Storage Temperature	T _{stg}	-55~+150	°C

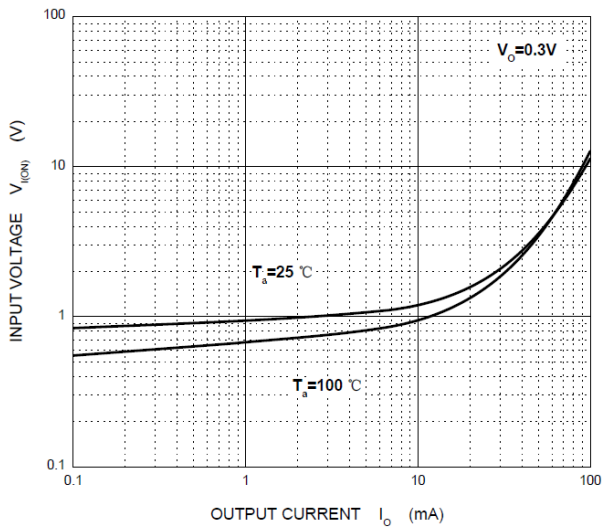
Electrical Characteristics

(Ratings at 25°C ambient temperature unless otherwise specified.)

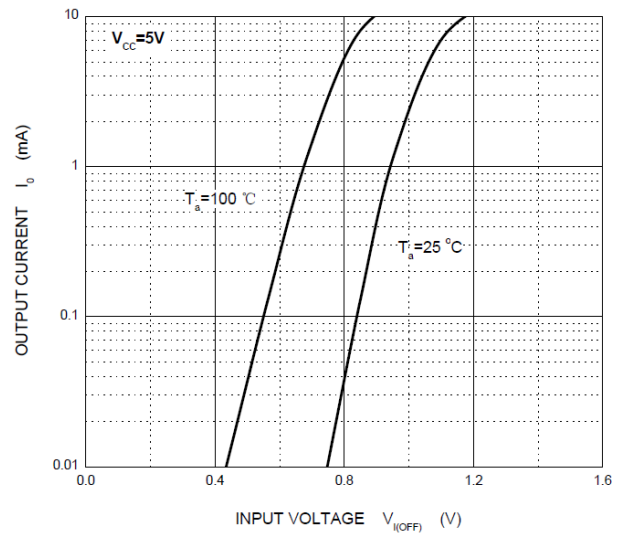
Parameter	Symbols	Test Condition	Limits			Unit
			Min	Typ	Max	
Input on voltage	V _{I(ON)}	V _O =0.3V, I _O =20mA			2.5	V
Input off voltage	V _{I(OFF)}	V _{CC} =5V, I _O =0.1mA	0.3			V
Output voltage	V _{O(on)}	I _O /I _I =10mA/0.5mA		0.1	0.3	V
Input current	I _I	V _I =5V			1.8	mA
Output current	I _{O(off)}	V _{CC} =50V, V _I =0			0.5	uA
DC current gain	G _I	V _O =5V, I _O =10mA	30			
Input resistor	R ₁	-	3.29	4.7	6.11	kΩ
Resistor ratio	R ₂ /R ₁	-	1.7	2.1	2.6	
Transition frequency	f _T	V _O =10V, I _O =5mA, f=100MHz		250		MHz

Typical characteristics

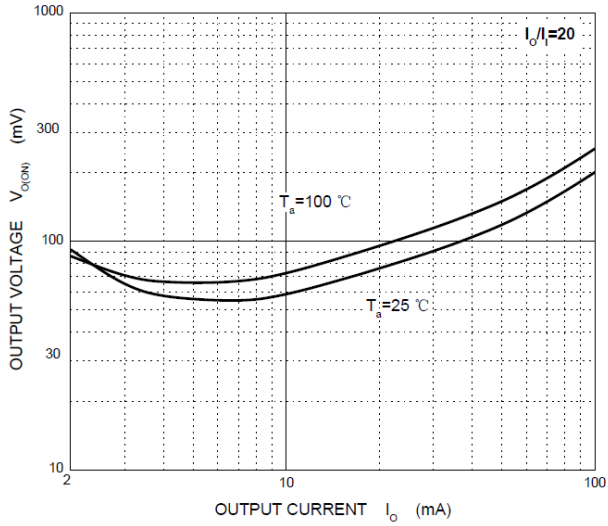
ON Characteristics



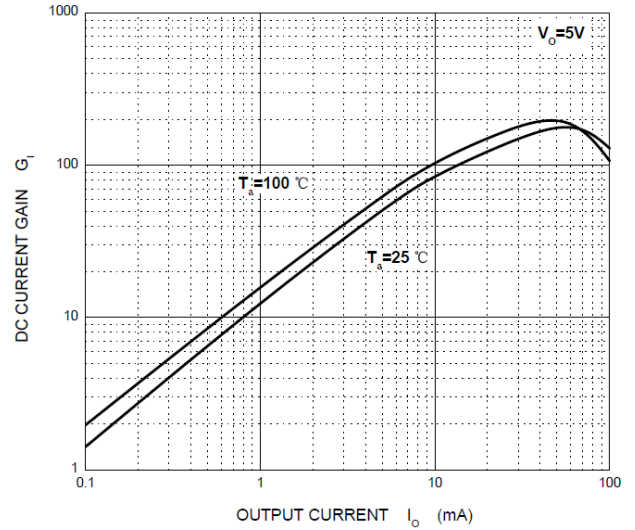
OFF Characteristics



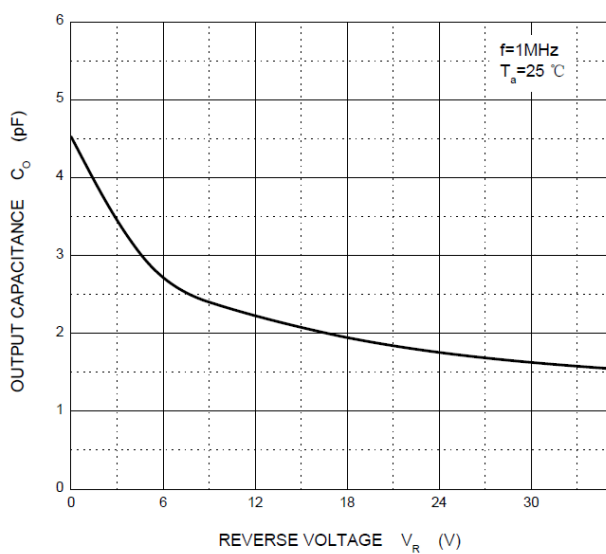
$V_{OL(ON)} - I_O$



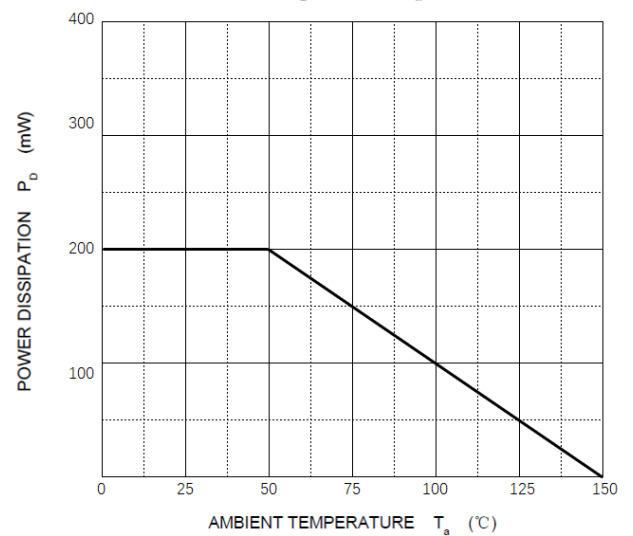
$G_I - I_O$



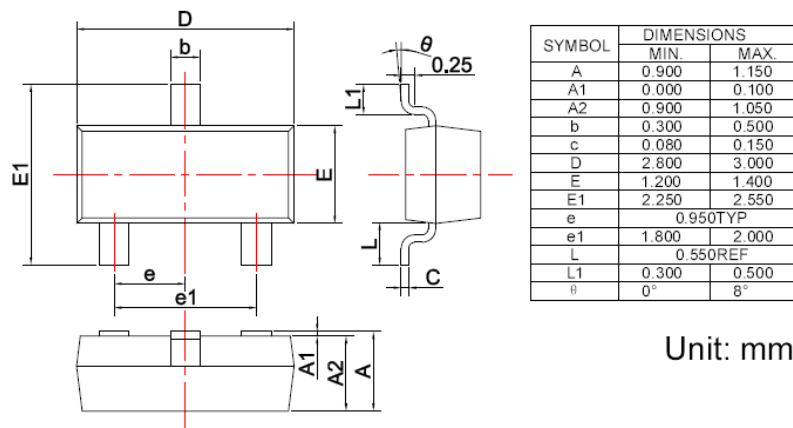
$C_O - V_R$



$P_D - T_a$

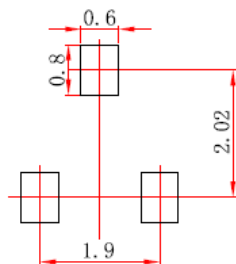


SOT-23 PACKAGE OUTLINE Plastic surface mounted package



Precautions: PCB Design

Recommended land dimensions for SOT-23 diode. Electrode patterns for PCBs



- Note:
1. Controlling dimension: in millimeters.
 2. General tolerance: $\pm 0.05\text{mm}$.
 3. The pad layout is for reference purposes only.