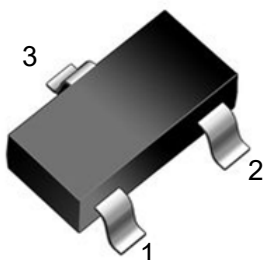
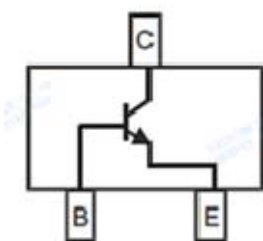


NPN General Purpose Transistor



SOT-23



Features

- Epoxy meets UL-94 V-0 flammability rating and halogen free
- Moisture Sensitivity Level 1
- Low collector-emitter saturation voltage
- High current capabilities
- Part no. with suffix "Q" means AEC-Q101 qualified

Applications

- General purpose switching and muting
- LCD backlighting
- Supply line switching circuits
- Battery driven equipment

Mechanical Data

- **Case:** SOT-23
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** ZT.

■ Maximum Ratings (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Value
Collector-Base Voltage	V _{CBO}	V	40
Collector-Emitter Voltage	V _{CEO}	V	40
Emitter-Base Voltage	V _{EBO}	V	5
Collector Current -Continuous	I _C	A	1
Total Device Dissipation	P _D	mW	300
Thermal Resistance Junction to Ambient	R _{thJA}	°C/W	417
Junction Temperature	T _j	°C	-55 to +150
Storage Temperature	T _{STG}	°C	-55 to +150

■ Electrical Characteristics (T_a=25°C Unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	Typ	Max
Collector-base breakdown voltage	V _{CBO}	V	I _C =100uA, I _E =0	40		
Collector-emitter breakdown voltage	V _{CEO}	V	I _C =2mA, I _B =0	40		
Emitter-base breakdown voltage	V _{EBO}	V	I _E =100uA, I _C =0	5		
Collector-base cut-off current	I _{CBO}	nA	V _{CB} =40V, I _E =0			100
Collector-emitter cut-off current	I _{CES}	nA	V _{CE} =30V			100



Emitter-base cut-off current	I_{EBO}	nA	$V_{EB}=5V, I_C=0$			100
DC current gain	h_{FE}		$V_{CE}=5V, I_C=1mA$	300		
	h_{FE}		$V_{CE}=5V, I_C=500mA$	300		900
	h_{FE}		$V_{CE}=5V, I_C=1A$	200		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	$I_C=100mA, I_B=1mA$			0.2
	$V_{CE(sat)}$	V	$I_C=500mA, I_B=50mA$			0.25
	$V_{CE(sat)}$	V	$I_C=1A, I_B=100mA$			0.5
Collector-emitter saturation resistance	$R_{CE(sat)}$	m Ω	$I_C=500mA, I_B=50mA$			500
Base-emitter saturation voltage	$V_{BE(sat)}$	V	$I_C=1A, I_B=100mA$			1.2
Base-emitter voltage	V_{BE}	V	$V_{CE}=5V, I_C=1A$			1.1
Collector-base output capacitance	Cob	pF	$V_{CB}=10V, f=1MHz$			12
Transition frequency	f_T	MHz	$V_{CE}=10V, I_C=50mA, f=100MHz$	150		

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
YJBS4140TQ	F2	Approximate 0.010	3000	30000	120000	7" reel

■ Characteristics (Typical)

Fig.1 - Collector Saturation Region

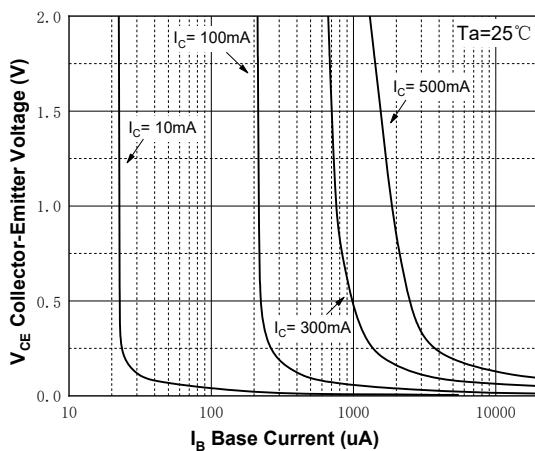


Fig.2 - DC Current Gain

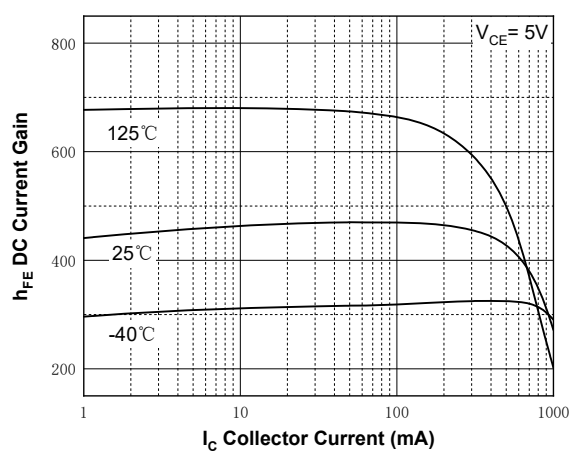


Fig.3 - Collector-Emitter Saturation Voltage vs. Collector Current

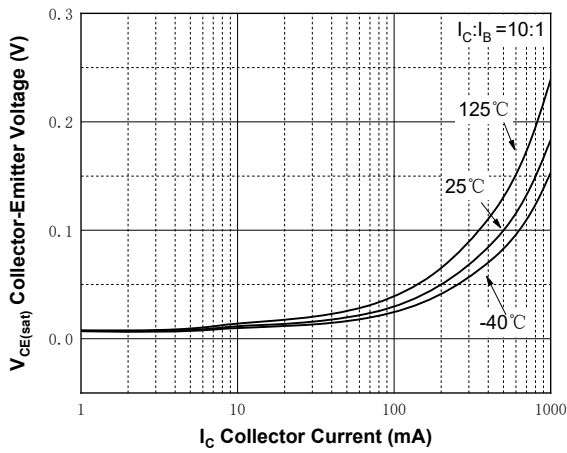


Fig.4 - Collector-Emitter Saturation Voltage vs. Collector Current

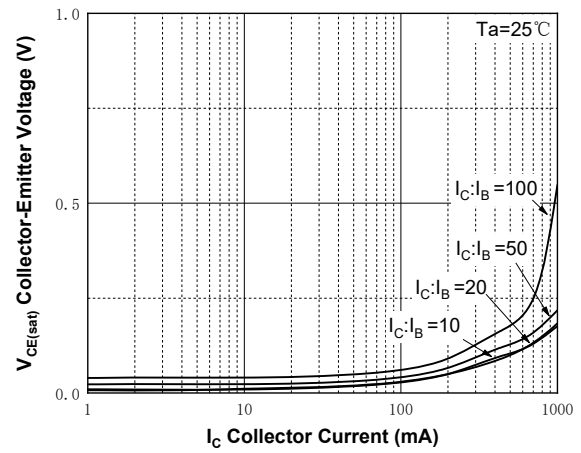


Fig.5 - Base-Emitter Saturation Voltage vs. Collector Current

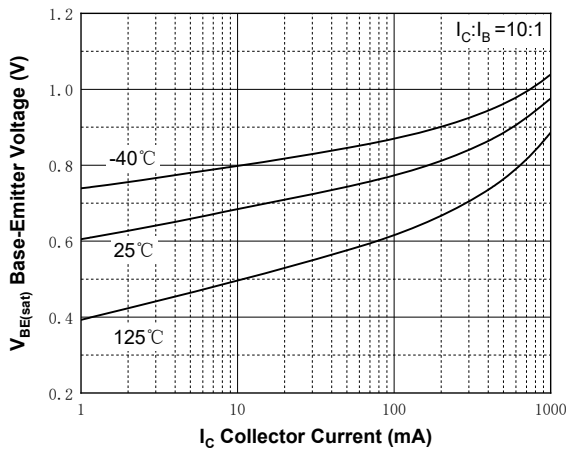


Fig.6 - Base-Emitter Turn-on Voltage vs. Collector Current

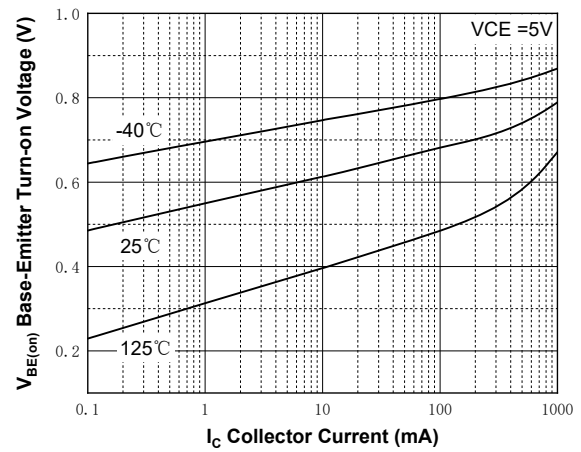
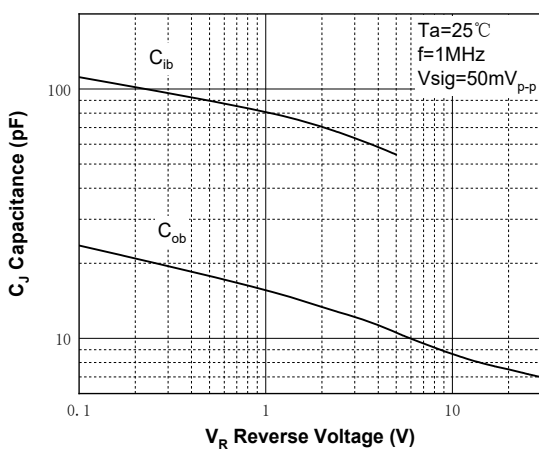
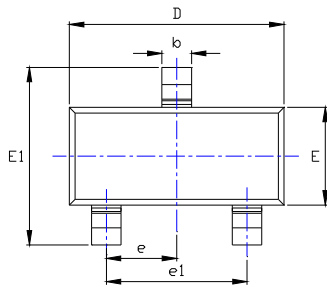


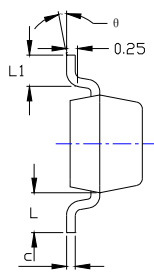
Fig.7 - Capacitance



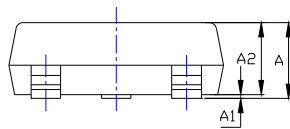
■ SOT-23 Package Outline Dimensions & Suggested Pad Layout



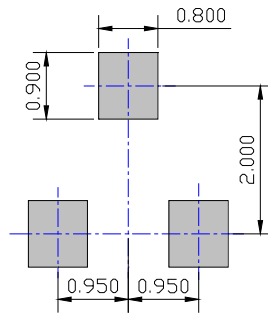
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT: mm

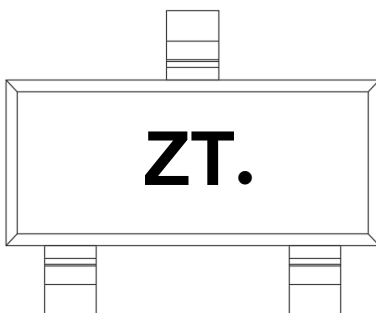
SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.045	0.900	1.150
A1	0.000	0.004	0.000	0.100
A2	0.035	0.041	0.900	1.050
b	0.012	0.020	0.300	0.500
c	0.004	0.008	0.100	0.200
D	0.110	0.118	2.800	3.000
E	0.047	0.055	1.200	1.400
E1	0.089	0.100	2.250	2.550
e	0.037 TYP		0.950 TYP	
e1	0.071	0.079	1.800	2.000
L	0.022 REF		0.550 REF	
L1	0.012	0.020	0.300	0.500
θ	0°	8°	0°	8°

NOTE:

1. PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2. TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3. THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

■ Marking Information



Note:

1. All marking is at middle of the product body
2. All marking is in laser marking
3. ZT is Marking Code
4. Body color: Black



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