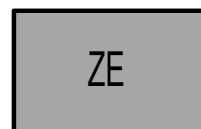


FEATURES

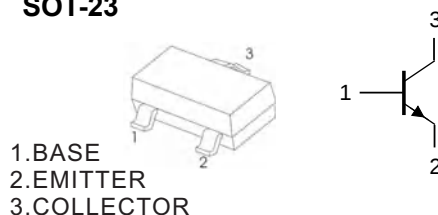
- Low collector-emitter saturation voltage
- High current capability
- Improved device reliability due to reduced heat generation

APPLICATIONS

- Supply line switching circuits
- Battery management applications
- DC/DC converter applications
- Strobe flash units
- Heavy duty battery powered equipment (motor and lamp drivers).



SOT-23



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Ratings(Ta=25°C)

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
V _{CBO}	collector-base voltage	open emitter	—	40	V
V _{CEO}	collector-emitter voltage	open base	—	40	V
V _{EBO}	emitter-base voltage	open collector	—	5	V
I _C	collector current (DC)		—	2	A
I _{CM}	peak collector current		—	3	A
I _{BM}	peak base current		—	300	mA
P _{tot}	total power dissipation	T _{amb} ≤ 25 °C; note 1	—	300	mW
		T _{amb} ≤ 25 °C; note 2	—	480	mW
T _{stg}	storage temperature		–65	+150	°C
T _j	junction temperature		—	150	°C
T _{amb}	operating ambient temperature		–65	+150	°C

Notes

1. Device mounted on a printed-circuit board, single sided copper, tinplated and standard footprint.
2. Device mounted on a printed-circuit board, single sided copper, tinplated and mounting pad for collector 1 cm².

ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

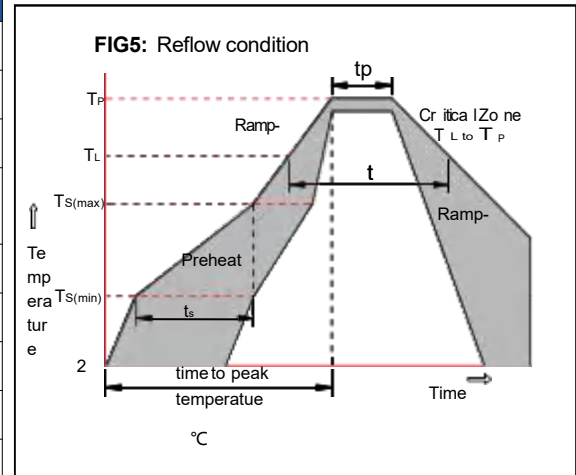
SYMBOL	PARAMETER	CONDITIONS	MIN.	TYP.	MAX.	UNIT
I_{CBO}	collector-base cut-off current	$I_E = 0; V_{CB} = 30\text{ V}$	—	—	100	nA
		$I_E = 0; V_{CB} = 30\text{ V}; T_j = 150\text{ °C}$	—	—	50	μA
I_{EBO}	emitter-base cut-off current	$I_C = 0; V_{EB} = 4\text{ V}$	—	—	100	nA
h_{FE}	DC current gain	$I_C = 100\text{ mA}; V_{CE} = 2\text{ V}$	350	470	—	
		$I_C = 500\text{ mA}; V_{CE} = 2\text{ V}$	300	450	—	
		$I_C = 1\text{ A}; V_{CE} = 2\text{ V}$	300	420	—	
		$I_C = 2\text{ A}; V_{CE} = 2\text{ V}$	150	250	—	
V_{CEsat}	collector-emitter saturation voltage	$I_C = 100\text{ mA}; I_B = 1\text{ mA}$	—	45	70	mV
		$I_C = 500\text{ mA}; I_B = 50\text{ mA}$	—	70	100	mV
		$I_C = 750\text{ mA}; I_B = 15\text{ mA}$	—	120	180	mV
		$I_C = 1\text{ A}; I_B = 50\text{ mA}; \text{note 1}$	—	130	180	mV
		$I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note 1}$	—	240	320	mV
R_{CEsat}	equivalent on-resistance	$I_C = 500\text{ mA}; I_B = 50\text{ mA}; \text{note 1}$	—	140	<200	mΩ
V_{BEsat}	base-emitter saturation voltage	$I_C = 2\text{ A}; I_B = 200\text{ mA}; \text{note 1}$	—	—	1.1	V
V_{BEon}	base-emitter turn on voltage	$I_C = 100\text{ mA}; V_{CE} = 2\text{ V}$	—	—	0.75	V
C_c	collector capacitance	$I_E = I_e = 0; V_{CB} = 10\text{ V}; f = 1\text{ MHz}$	—	15	20	pF
f_T	transition frequency	$I_C = 100\text{ mA}; V_{CE} = 10\text{ V}; f = 100\text{ MHz}$	100	230	—	MHz

Note

1. Pulse test: $t_p \leq 300\text{ μs}; \delta \leq 0.02$.

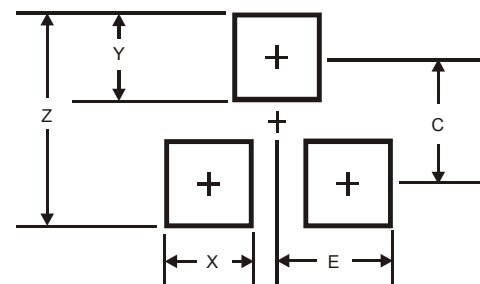
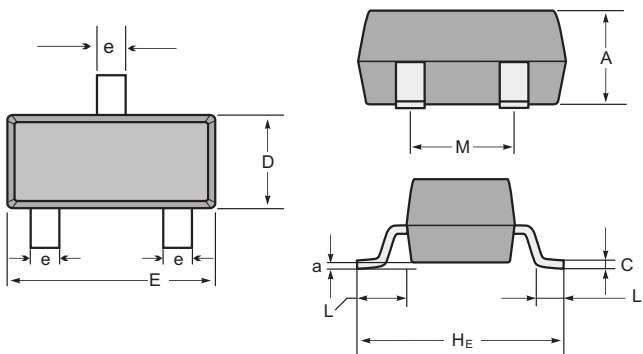
Soldering parameters

Reflow Condition		Pb-Free assembly (see as below)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150°C
	-Temperature Max($T_{s(max)}$)	+200°C
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquid us Temp (T_L) to peak)		3°C/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3°C/sec. Max
Reflow	-Temperature(T_L)(Liquid us)	+217°C
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_P)		+260(+0/-5)°C
Time within 5°C of actual Peak Temp (t_P)		30 secs. Max
Ramp-down Rate		6°C/sec. Max
Time 25°C to Peak Temp (T_P)		8 min. Max
Do not exceed		+260°C



Package Dimensions & Suggested Pad Layout

SOT23

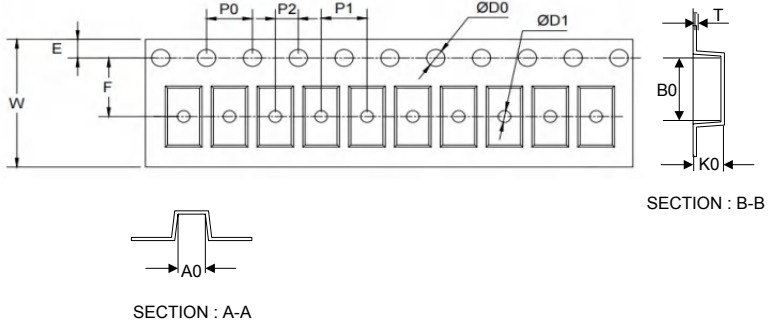


SOT-23 mechanical data

UNIT	A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7		0.15
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)
	min	35	3	47	110	87	12	67		6

Dimensions	SOT23
Z	2.9
X	0.8
Y	0.9
C	2.0
E	1.35

Tape & reel specification

Tape	Symbol	Dimension (mm)
	P0	4.00±0.10
	P1	4.00±0.10
	P2	2.00±0.10
	D0	1.55±0.10
	D1	1.05±0.10
	E	1.55±0.10
	F	3.60±0.10
	W	8.00±0.10
	A0	3.80±0.20
	B0	3.25±0.20
	K0	1.45±0.10
	T	0.25±0.05
	D2	178.0±3.0
	D3	55Min.
	D4	R24.0±3.0
	G	R82.0±3.0
	I	13.0±2.0
	W1	11.0±3.0
7" Reel	Quantity: 3000PCS	
	