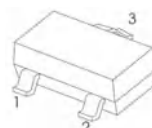


General Description

High DC Current Gain: $h_{FE} = 200$ TYP. ($V_{CE} = -6.0$ V, $I_C = -1.0$ mA)

High Voltage: $V_{CEO} = -50$ V

SOT-23



Mx

1.BASE
2.EMITTER
3.COLLECTOR

MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

Absolute Maximum Rating ($T_a = 25^\circ\text{C}$)

Parameter	Symbol	Rating	Unit
Collector to base voltage	V_{CBO}	-60	V
Collector to emitter voltage	V_{CEO}	-50	V
Emitter to base voltage	V_{EBO}	-5.0	V
Collector current (DC)	I_C	-100	mA
power dissipation	P_C	200	mW
Junction temperature	T_j	150	$^\circ\text{C}$
Storage temperature range	T_{stg}	-55 to +150	$^\circ\text{C}$

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

Parameter	Symbol	Testconditons	Min	Typ	Max	Unit
Collector cutoff current	ICBO	V _{CB} = -60 V, I _E = 0 A			-0.1	μ A
Emitter cutoff current	IEBO	V _{EB} = -5.0 V, I _C = 0 A			-0.1	μ A
DC current gain *	hFE	V _{CE} = -6.0 V, I _C = -1.0 mA	90	200	600	
Collector saturation voltage	V _{CE(sat)}	I _C = -100 mA, I _B = -10 mA		-0.18	-0.3	V
Base to emitter voltage	V _{BE}	V _{CE} = 6.0 V, I _C = -1.0 mA	-0.58	-0.62	-0.68	V
Output capacitance	C _{ob}	V _{CE} = -10 V, I _E = 0 A, f = 1.0 MHz		4.5		pF
Transition frequency	f _T	V _{CE} = -6.0 V, I _E = 10 mA		180		MHz

* Pulsed: PW ≤ 350 μ s, Duty Cycle ≤ 2%

hFE Classification

Marking	M4	M5	M6	M7
hFE	90~180	135~270	200~400	300~600

RATING AND CHARACTERISTIC CURVES

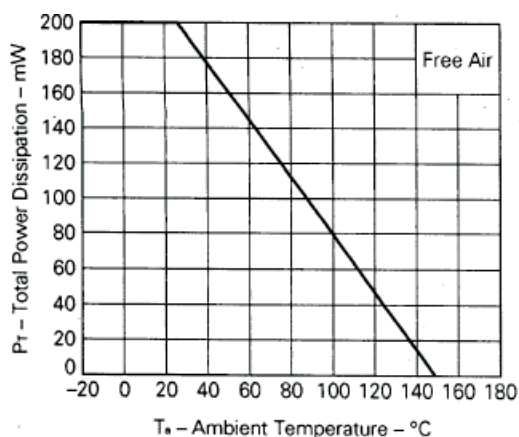


Fig.1 Total Power Dissipation vs. Ambient Temperature

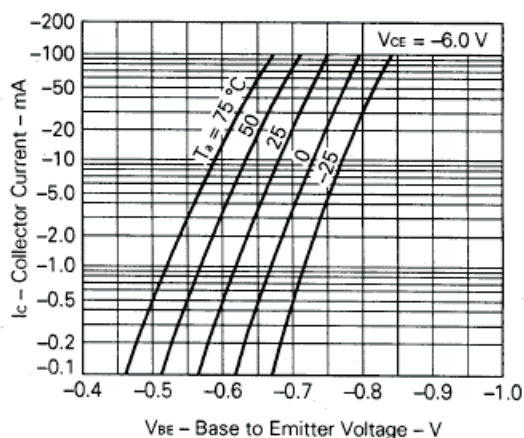


Fig.2 Collector Current vs. Base to Emitter Voltage

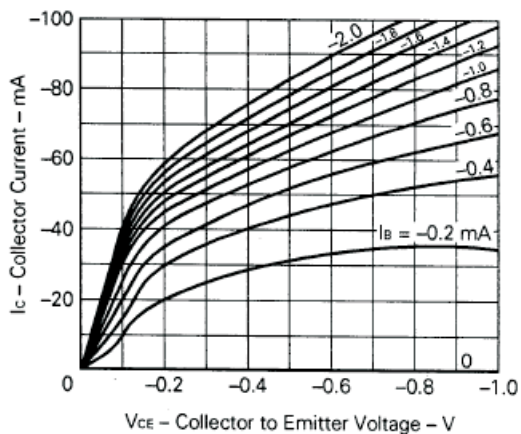


Fig.3 Collector Current vs. Collector to Emitter Voltage

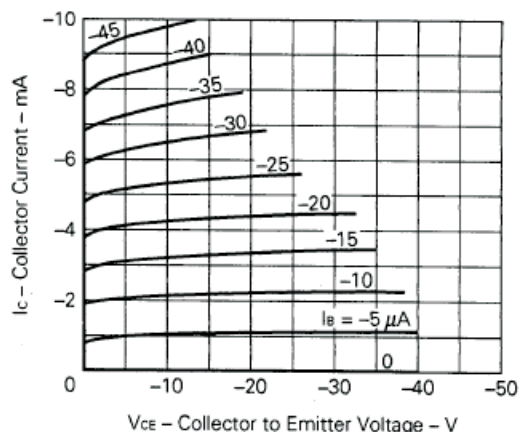


Fig.4 Collector Current vs. Collector to Emitter Voltage

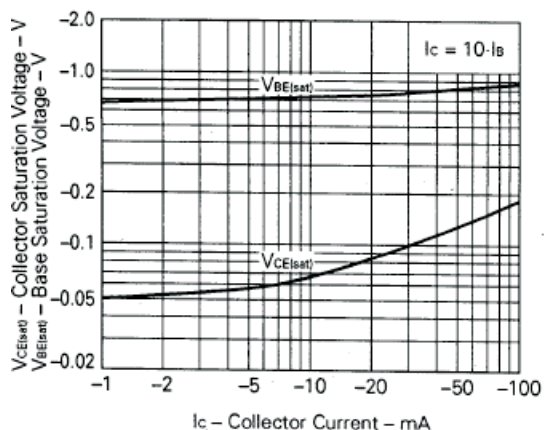


Fig.5 Base and Collector Saturation Voltage vs. Collector Current

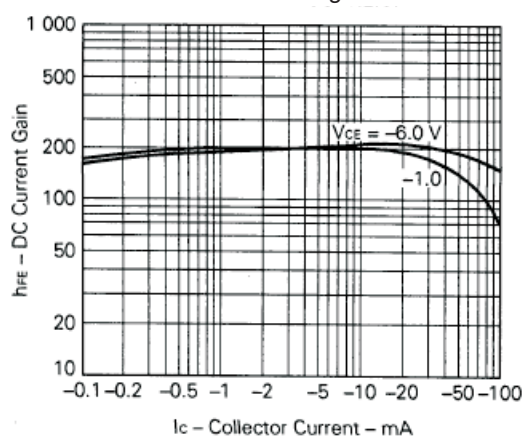
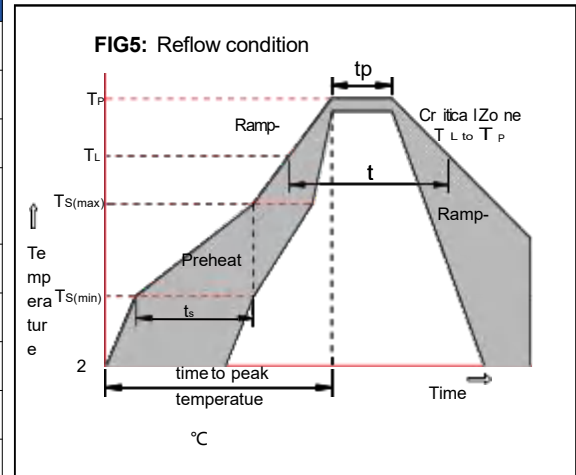


Fig.6 DC Current Gain vs. Collector Current

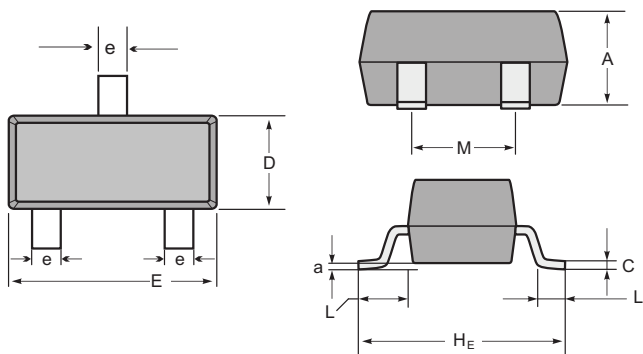
Soldering parameters

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



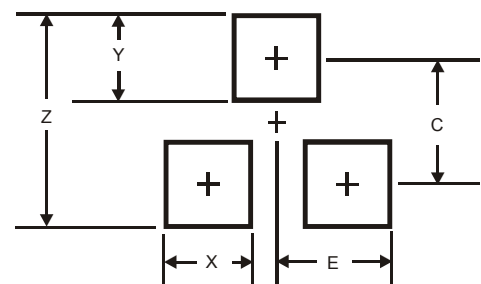
Package Dimensions & Suggested Pad Layout

SOT23



SOT-23 mechanical data

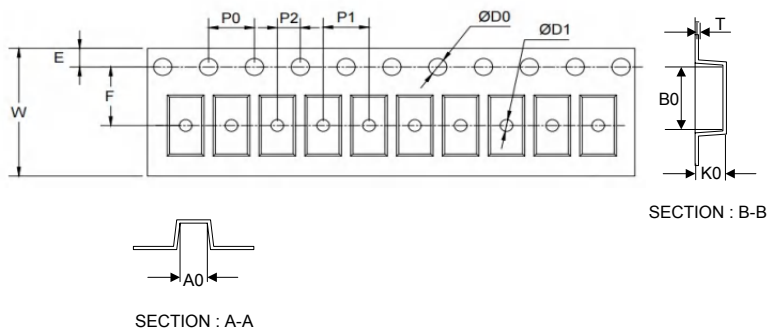
UNIT		A	C	D	E	H _E	e	M	L	L ₁	a
mm	max	1.1	0.15	1.4	3.0	2.6	0.5	1.95	0.55 (ref)	0.36 (ref)	0.15
	min	0.9	0.08	1.2	2.8	2.2	0.3	1.7			0.0
mil	max	43	6	55	118	102	20	77	22 (ref)	14 (ref)	6
	min	35	3	47	110	87	12	67			0.0



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

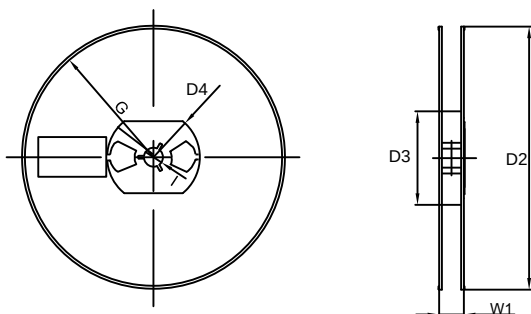
Tape & reel specification

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

7" Reel



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

Quantity: 3000PCS