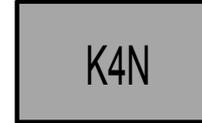
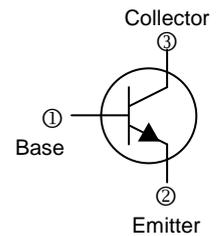


FEATURES

Ideal for Medium Power Amplification and Switching
Also Available in Lead Free Version
Complementary to MMBT5401W



1. BASE
2. EMITTER
3. COLLECTOR



MAXIMUM RATINGS AND ELECTRICAL CHARACTERISTICS

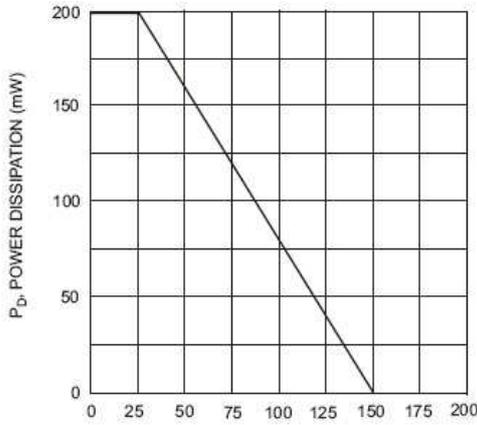
MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Collector to Base Voltage	V_{CBO}	180	V
Collector to Emitter Voltage	V_{CEO}	160	V
Emitter to Base Voltage	V_{EBO}	6	V
Collector Current-Continuous	I_C	200	mA
Collector Power Dissipation	P_C	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C}/\text{W}$
Operating & Storage Temperature	T_J, T_{STG}	150, -55 ~ 150	$^\circ\text{C}$

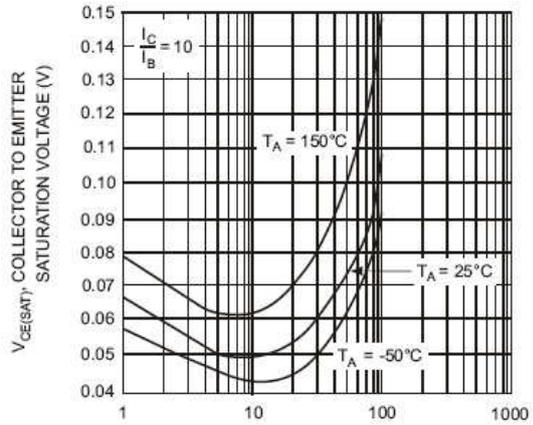
ELECTRICAL CHARACTERISTICS (TA = 25°C unless otherwise noted.)

CHARACTERISTIC	SYMBOL	MIN	MAX	UNIT	TEST CONDITION
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	180		V	$I_C=100\mu A, I_E=0$
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	160		V	$I_C = 1mA, I_B = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	6		V	$I_E=10\mu A, I_C=0$
Collector Cutoff Current	I_{CBO}		50	nA	$V_{CB}=120V, I_E=0$
Emitter Cutoff Current	I_{EBO}		50	nA	$V_{EB}=4V, I_C=0$
DC Current Gain	h_{FE1}	80			$V_{CE}=5V, I_C=1mA$
	h_{FE2}	80	250		$V_{CE}=5V, I_C=10mA$
	h_{FE3}	30			$V_{CE}=5V, I_C=50mA$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$		0.15	V	$I_C=10mA, I_B=1mA$
	$V_{CE(sat)}$		0.2	V	$I_C=50mA, I_B=5mA$
Base-Emitter Voltage	$V_{BE(sat)}$		1	V	$I_C=10mA, I_B=1mA$
	$V_{BE(sat)}$		1	V	$I_C=50mA, I_B=5mA$
Transition Frequency	f_T	100	300	MHz	$V_{CE}=10V, I_C=10mA, f=100MHz$
Collector Output Capacitance	C_{ob}		6	pF	$V_{CB}=10V, I_E=0, f=1MHz$
Noise Figure	NF		8	dB	$V_{CE}=5V, I_C=0.2mA, f=1KHz, R_S=1K\Omega$

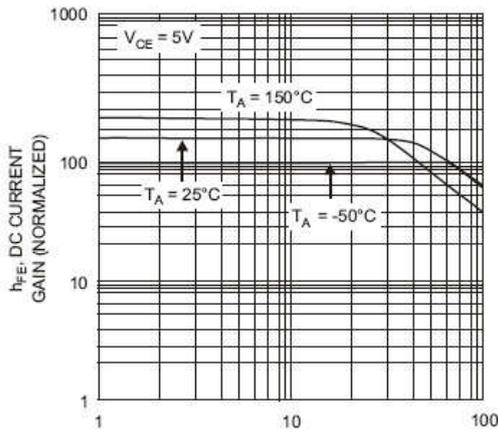
RATING AND CHARACTERISTIC CURVES



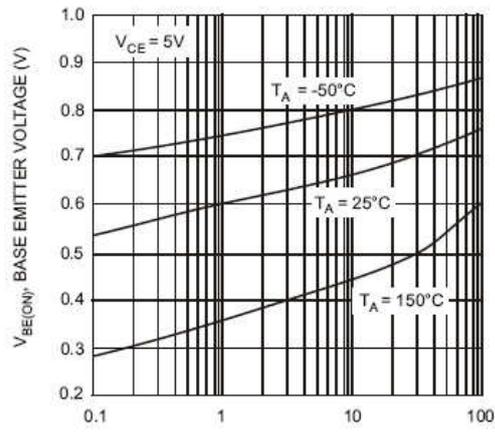
T_A , AMBIENT TEMPERATURE (°C)
Fig. 1, Max Power Dissipation vs Ambient Temperature



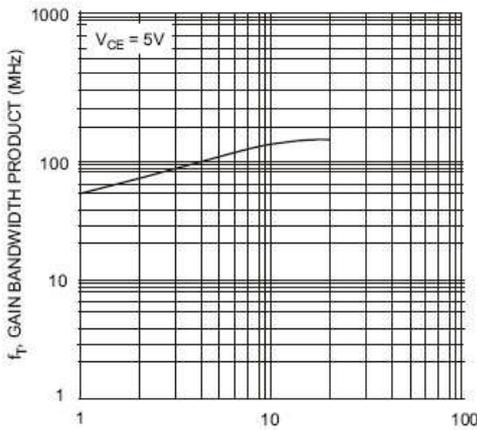
I_C , COLLECTOR CURRENT (mA)
Fig. 2, Collector Emitter Saturation Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 3, DC Current Gain vs Collector Current



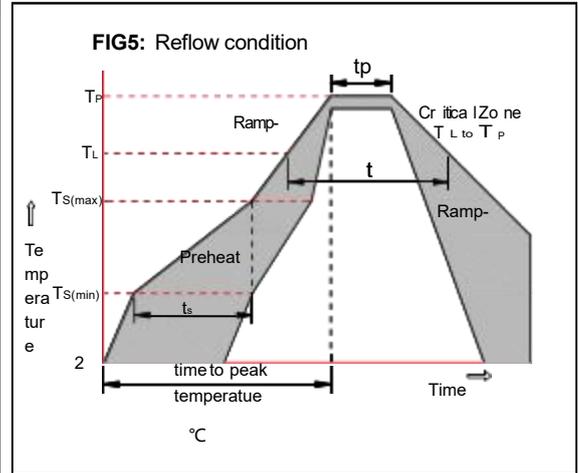
I_C , COLLECTOR CURRENT (mA)
Fig. 4, Base Emitter Voltage vs. Collector Current



I_C , COLLECTOR CURRENT (mA)
Fig. 5, Gain Bandwidth Product vs. Collector Current

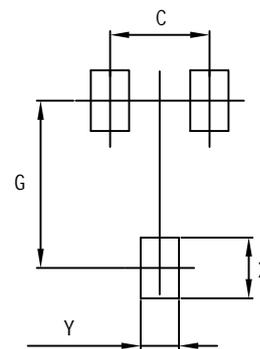
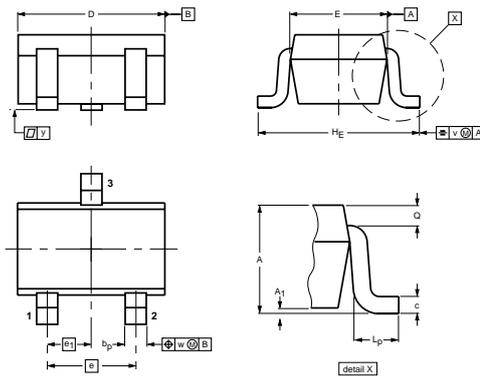
Soldering parameters

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

SOT-323



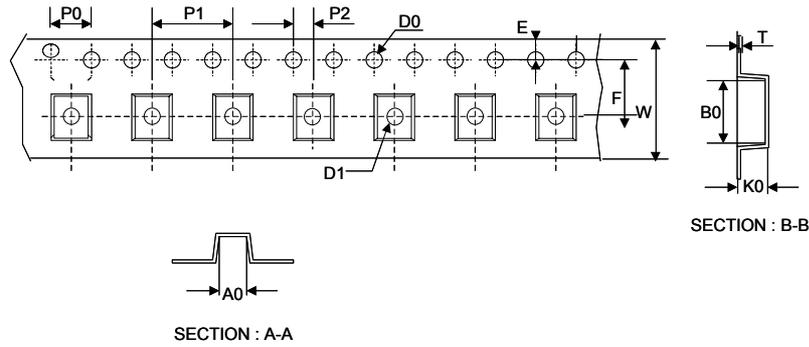
Dimensions	Value (in mm)
C	1.30
G	2.00
X	0.90
Y	0.65

DIMENSIONS (mm are the original dimensions)

UNIT	A	A ₁ max	b _p	c	D	E	e	e ₁	H _E	L _p	Q	v	w
mm	1.1 0.8	0.1	0.4 0.3	0.25 0.10	2.2 1.8	1.35 1.15	1.3	0.65	2.2 2.0	0.45 0.15	0.23 0.13	0.2	0.2

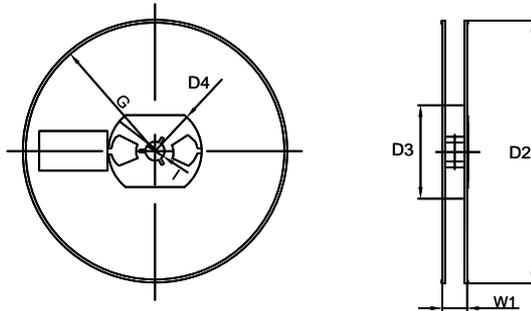
Tape & reel specification

Tape



Symbol	Dimension (mm)
P0	4.00±0.20
P1	4.00±0.20
P2	2.00±0.20
D0	1.55±0.20
D1	1.00±0.20
E	1.55±0.25
F	3.60±0.20
W	8.00±0.20
A0	2.50±0.20
B0	2.60±0.20
K0	1.40±0.20
T	0.20±0.20
D2	177.0±5.0
D3	55Min.
D4	R24.6±2.0
G	R82.0±2.0
I	13.0±2.0
W1	10.20±3.0

7" Reel



Quantity: 3000PCS