

## Features

- Halogen Free. "Green" Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- This device is designed for applications requiring extremely high current gain at 500mA
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

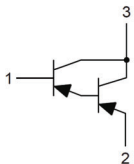
## Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55°C to +150°C
- Storage Temperature Range: -55°C to +150°C
- Thermal Resistance: 417°C/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	$V_{CBO}$	-30	V
Collector-Emitter Voltage	$V_{CEO}$	-30	V
Emitter-Base Voltage	$V_{EBO}$	-10	V
Collector Current	$I_C$	-500	mA
Collector Power Dissipation	$P_C$	300	mW

Note: 1. Halogen free "Green" products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

## Internal Structure



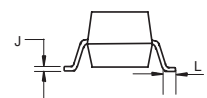
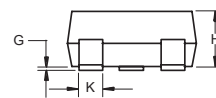
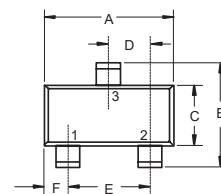
1.BASE  
2.EMITTER  
3.COLLECTOR

## Marking:

MMBTA63:2U  
MMBTA64:2V

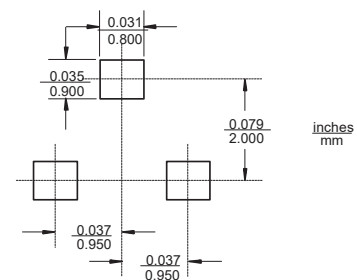
# PNP Darlington Transistor

## SOT-23



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.110	0.120	2.80	3.04	
B	0.083	0.104	2.10	2.64	
C	0.047	0.055	1.20	1.40	
D	0.034	0.041	0.85	1.05	
E	0.067	0.083	1.70	2.10	
F	0.018	0.024	0.45	0.60	
G	0.0004	0.006	0.01	0.15	
H	0.035	0.043	0.90	1.10	
J	0.003	0.007	0.08	0.18	
K	0.014	0.020	0.35	0.51	
L	0.007	0.020	0.20	0.50	

## Suggested Solder Pad Layout



**Electrical Characteristics @ 25°C Unless Otherwise Specified**

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-30			V	$I_C = -0.1\text{mA}$ , $I_B = 0$
Collector-Emitter Breakdown Voltage*	$V_{(BR)CEO}$	-30			V	$I_C = -0.1\text{mA}$ , $I_E = 0$
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-10			V	$I_E = -0.1\text{mA}$ , $I_C = 0$
Collector-Base Cutoff Current	$I_{CBO}$			-100	nA	$V_{CB} = -30\text{V}$ , $I_E = 0$
Emitter Cutoff Current	$I_{EBO}$			-100	nA	$V_{EB} = -10\text{V}$ , $I_C = 0$
DC Current Gain*	MMBTA63	$h_{FE(1)}$	5000			$V_{CE} = -5\text{V}$ , $I_C = -10\text{mA}$
	MMBTA64	$h_{FE(1)}$	10000			$V_{CE} = -5\text{V}$ , $I_C = -10\text{mA}$
	MMBTA63	$h_{FE(2)}$	10000			$V_{CE} = -5\text{V}$ , $I_C = -100\text{mA}$
	MMBTA64	$h_{FE(2)}$	20000			$V_{CE} = -5\text{V}$ , $I_C = -100\text{mA}$
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-1.5	V	$I_C = -100\text{mA}$ , $I_B = -0.1\text{mA}$
Base-Emitter On Voltage	$V_{BE(on)}$			-2.0	V	$I_C = -100\text{mA}$ , $V_{CE} = -5\text{V}$
Transition Frequency	$f_T$	125			MHz	$V_{CE} = -5\text{V}$ , $I_C = -10\text{mA}$ , $f = 100\text{MHz}$

\*Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$

## Curve Characteristics

Fig. 1-DC Current Gain

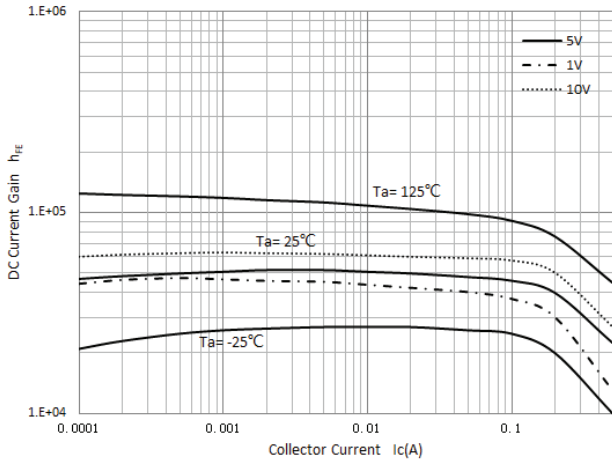


Fig. 2-Collector-Emitter Saturation Voltage

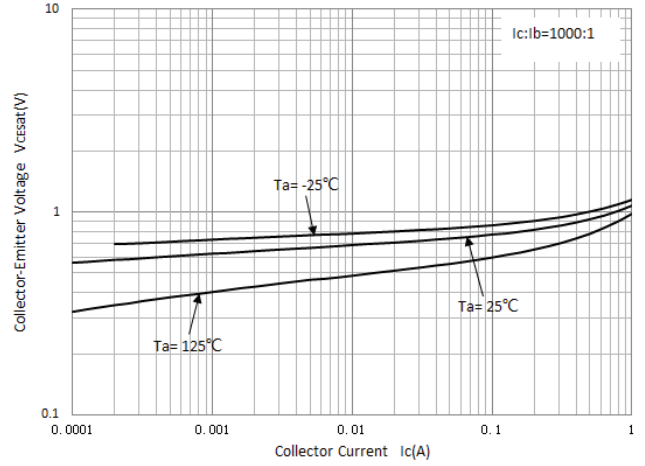


Fig. 3-Base-Emitter Saturation Voltage

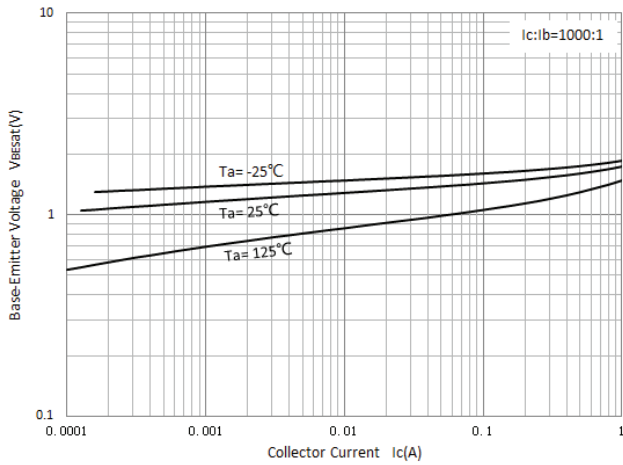


Fig. 4-Base-Emitter On Voltage

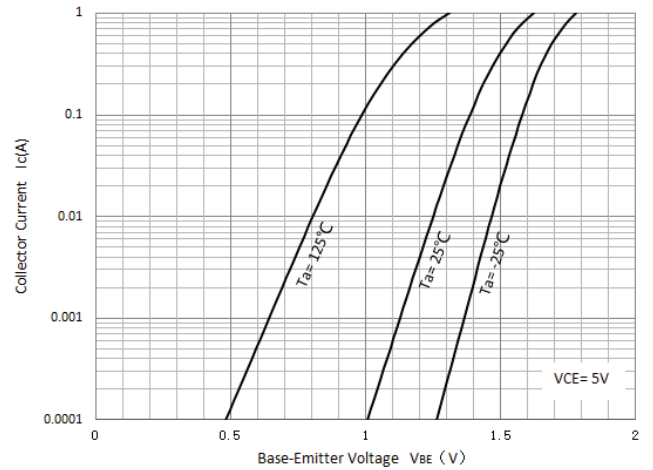
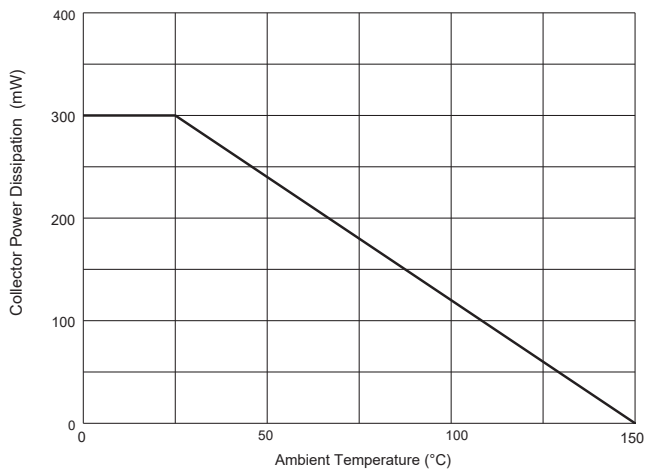


Fig. 5- Collector Power Derating Curve



## Ordering Information

Device	Packing
Part Number-TP	Tape&Reel: 3Kpcs/Reel

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