MMBT2907AT-TP Datasheet

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DiGi Electronics Part Number	MMBT2907AT-TP-DG
Manufacturer	Micro Commercial Co
Manufacturer Product Number	MMBT2907AT-TP
Description	TRANS PNP 60V 0.6A SOT523
Detailed Description	Bipolar (BJT) Transistor PNP 60 V 600 mA 140MHz 150 mW Surface Mount SOT-523

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Purchase and inquiry

Manufacturer Product Number:	Manufacturer:
MMBT2907AT-TP	Micro Commercial Co
Series:	Product Status:
-	Active
Transistor Type:	Current - Collector (Ic) (Max):
PNP	600 mA
Voltage - Collector Emitter Breakdown (Max):	Vce Saturation (Max) @ Ib, Ic:
60 V	1.6V @ 50mA, 500mA
Current - Collector Cutoff (Max):	DC Current Gain (hFE) (Min) @ Ic, Vce:
10nA (ICBO)	100 @ 10mA, 10V
Power - Max:	Frequency - Transition:
150 mW	140MHz
Operating Temperature:	Mounting Type:
-55°C ~ 150°C (TJ)	Surface Mount
Package / Case:	Supplier Device Package:
SOT-523	SOT-523
Base Product Number:	
MMBT2907	

Environmental & Export classification

RoHS Status:	Moisture Sensitivity Level (MSL):
ROHS3 Compliant	1 (Unlimited)
REACH Status:	ECCN:
REACH Unaffected	EAR99
HTSUS:	
8541.21.0075	

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Micro Commercial Components

MMBT2907AT

Features

- Halogen Free. “Green” Device (Note 1)
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

PNP General Purpose Amplifier

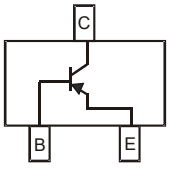
Maximum Ratings @ 25°C Unless Otherwise Specified

- Operating Junction Temperature Range: -55℃ to +150℃
- Storage Temperature Range: -55℃ to +150℃
- Thermal Resistance: 833℃/W Junction to Ambient

Parameter	Symbol	Rating	Unit
Collector-Base Voltage	V_{CBO}	-60	V
Collector-Emitter Voltage	V_{CEO}	-60	V
Emitter-Base Voltage	V_{EBO}	-5	V
Collector Current	I_C	-600	mA
Collector Power Dissipation	P_C	150	mW

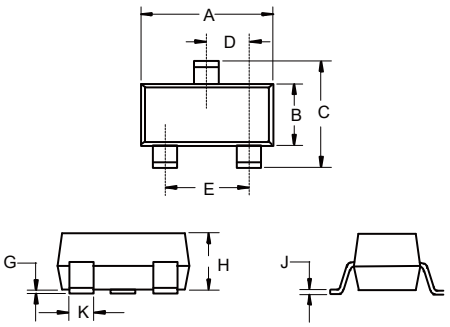
Note: 1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.

Internal Structure



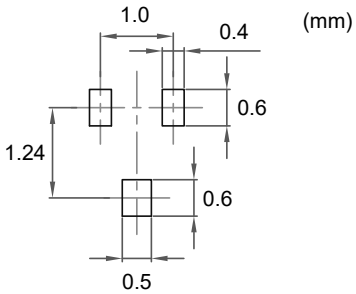
Marking: 2F

SOT-523



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.059	0.067	1.50	1.70	
B	0.030	0.033	0.75	0.85	
C	0.057	0.069	1.45	1.75	
D	0.020		0.50		TYP.
E	0.035	0.043	0.90	1.10	
G	0.000	0.004	0.00	0.10	
H	0.024	0.031	0.60	0.80	
J	0.004	0.008	0.10	0.20	
K	0.006	0.014	0.15	0.35	

Suggested Solder Pad Layout



Electrical Characteristics @ 25°C Unless Otherwise Specified

Parameter	Symbol	Min	Typ	Max	Units	Conditions
Collector-Base Breakdown Voltage	$V_{(BR)CBO}$	-60			V	I_C=-10μA, I_E=0
Collector-Emitter Breakdown Voltage	$V_{(BR)CEO}$	-60			V	I_C=-10mA, I_B=0
Emitter-Base Breakdown Voltage	$V_{(BR)EBO}$	-5			V	I_E=-10μA, I_C=0
Collector-Base Cutoff Current	I_{CBO}			-10	nA	V_{CB}=-50V, I_E=0
Emitter-Base Cutoff Current	I_{EBO}			-10	nA	V_{EB}=-4V, I_C=0
DC Current Gain(Note2)	$h_{FE(1)}$	75				V_{CE}=-10V, I_C=-0.1mA
	$h_{FE(2)}$	100				V_{CE}=-10V, I_C=-1mA
	$h_{FE(3)}$	100		300		V_{CE}=-10V, I_C=-10mA
	$h_{FE(4)}$	100				V_{CE}=-10V, I_C=-150mA
	$h_{FE(5)}$	50				V_{CE}=-10V, I_C=-500mA
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$			-0.4	V	I_C=-150mA, I_B=-15mA
				-1.6	V	I_C=-500mA, I_B=-50mA
Base-Emitter Saturation Voltage	$V_{BE(sat)}$			-1.3	V	I_C=-150mA, I_B=-15mA
				-2.6	V	I_C=-500mA, I_B=-50mA
Transition Frequency	f_T		140		MHz	V_{CE}=-12V, I_C=-2mA, f=30MHz
Output Capacitance	C_{cbo}			5	pF	V_{CB}=-12V, I_E=0, f=100KHz
Turn on Time	t_{on}			45	ns	V_{CC}=-30V, I_C=-150mA I_{B1}=-15mA
Delay Time	t_d			10	ns	
Rise Time	t_r			40	ns	
Turn off Time	t_{off}			100	ns	V_{CC}=-6V, I_C=-150mA I_{B1}=I_{B2}=-15mA
Storage Time	t_s			80	ns	
Fall Time	t_f			30	ns	

Note: 2. Pulse Width ≤ 300μs, Duty Cycle≤2.0%

Curve Characteristics

Fig. 1 - Static Characteristics

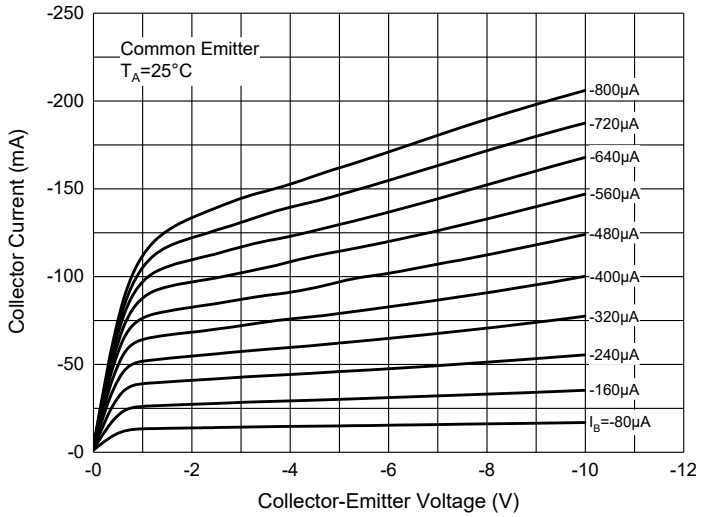


Fig. 2 - DC Current Gain Characteristics

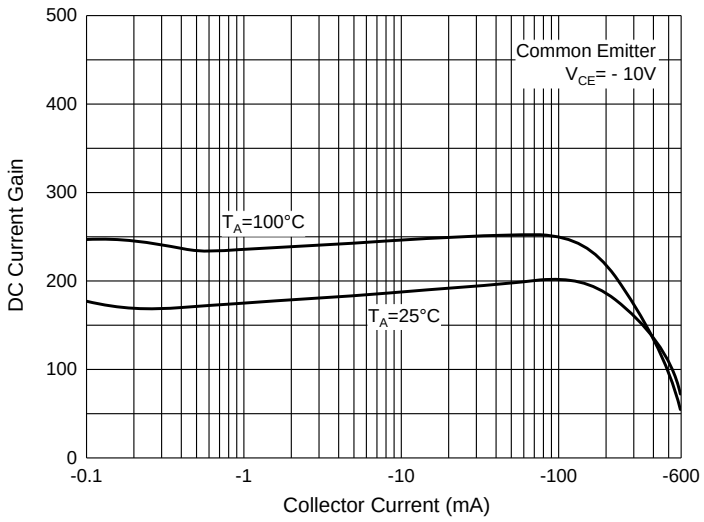


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

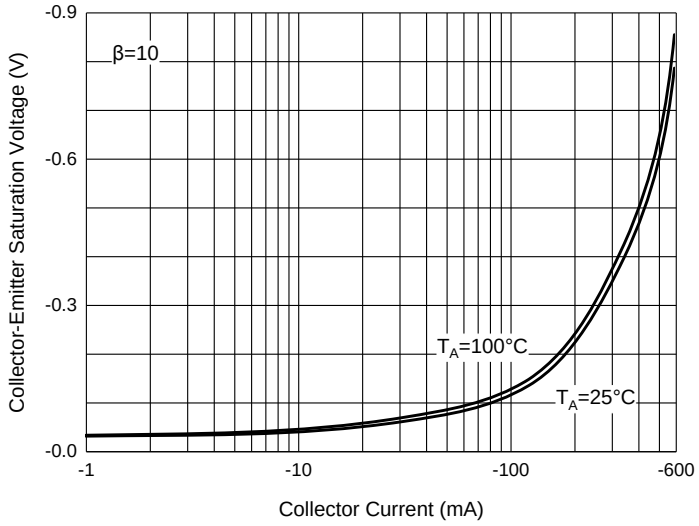


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

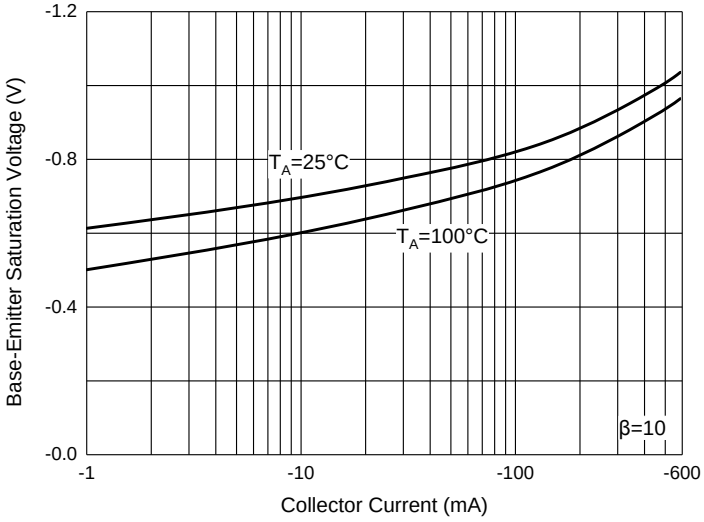


Fig. 5 - Base-Emitter Voltage Characteristics

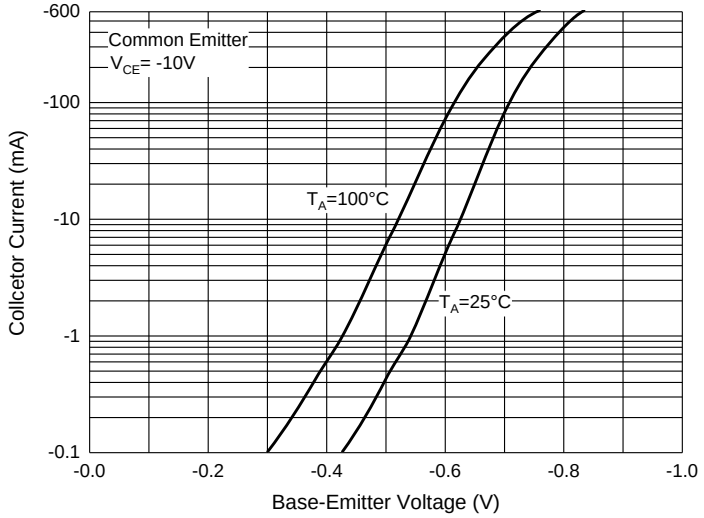
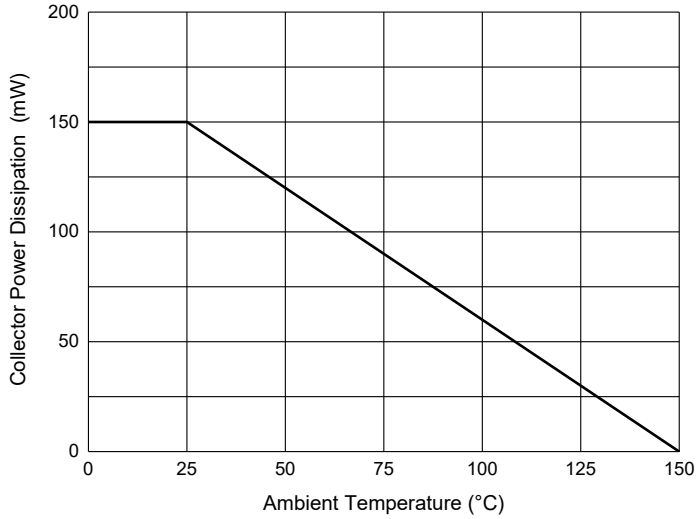


Fig. 6 - Collector Power Derating Curve



Ordering Information

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

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