

GSTMMDT3906J4F

PNP General Purpose Transistor

Product Description

This device is designed as a general-purpose amplifier and switch.

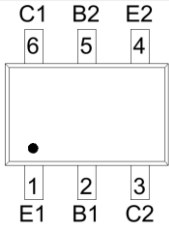
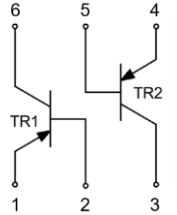
Features

- Complementary to GSTMMDT3904
- Collector-emitter voltage $V_{CE} = -40V$
- Collector current $I_C = -200mA$

Mechanical Data

- SOT-363 package design
- Epoxy meets UL 94 V-0 Flammability Rating
- RoHS Compliant and Halogen Free

Packages & Pin Assignments

SOT-363			Equivalent Circuit		
 Top View					
Pin	Symbol	Description	Pin	Symbol	Description
1	E1	Emitter 1	4	E2	Emitter 2
2	B1	Base 1	5	B2	Base 2
3	C2	Collector 2	6	C1	Collector 1

Ordering and Marking Information

Ordering Information			
Part Number	Package	Marking Code	Quantity/Reel
GSTMMDT3906J4F	SOT-363	K3N	3,000 PCS
GSTMMDT3906 ¹ ² - Product Code: GSTMMDT3906 - Package Code: ¹ is J4 for SOT-363 - Green Level: F for RoHS Compliant and Halogen Free			
Marking Information			
K3N - Product Code: K3N			

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter	Value	Unit
V _{CEO}	Collector-Emitter Voltage	-40	V
V _{CBO}	Collector-Base Voltage	-40	V
V _{EBO}	Emitter-Base Voltage	-5	V
I _C	Collector Current	-200	mA
P _D	Power Dissipation T _A =25°C*	200	mW
R _{θJA}	Thermal Resistance, Junction to Ambient	625	°C/W
T _J	Junction Temperature Range	150	°C
T _{STG}	Storage Temperature Range	-55 to +150	°C

* Device mounted on an FR4 PCB, single-sided copper, tin-plated and standard footprint.

Electrical Characteristics (T_A=25°C unless otherwise specified)

Symbol	Description	Conditions	Min	Max	Unit
V _{(BR)CBO}	Collector-base breakdown voltage	I _C =-10μA, I _E =0	-40	-	V
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =-1mA, I _B =0	-40	-	V
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E =-10μA, I _C =0	-5	-	V
I _{CEX}	Collector cut-off current	V _{CE} =-30V, V _{EB(OFF)} =-3V	-	-50	nA
I _{CBO}	Collector cut-off current	V _{CB} =-30V, I _E =0	-	-50	nA
I _{EBO}	Emitter-Base Cutoff Current	V _{EB} =-5V, I _E =0	-	-50	nA
h _{FE}	DC Current Gain	V _{CE} =-1V, I _C =-0.1mA	40	-	
		V _{CE} =-1V, I _C =-1mA	70	-	
		V _{CE} =-1V, I _C =-10mA	100	300	
		V _{CE} =-1V, I _C =-50mA	60	-	
		V _{CE} =-1V, I _C =-100mA	30	-	
V _{CE(sat)}	Collector-emitter saturation voltage	I _C =-10mA, I _B =-1mA	-	-0.25	V
		I _C =-50mA, I _B =-5mA	-	-0.4	
V _{BE(sat)}	Base-Emitter Saturation Voltage	I _C =-10mA, I _B =-1mA	-0.65	-0.85	V
		I _C =-50mA, I _B =-5mA	-	-0.95	
f _T	Current Gain-Bandwidth Product	V _{CE} =-20V, I _C =-10mA f= 100MHz	250	-	MHz
C _{ob}	Collector output capacitance	V _{CB} =-5V, I _E =0, f=1MHz	-	4.5	pF
N _F	Noise figure	V _{CE} =-5V, I _C =-0.1mA, f=1KHz, R _g =1KΩ	-	4	dB
t _d	Delay time	V _{CC} =-3V, V _{BE} =0.5V I _C =-10mA , I _{B1} =-I _{B2} =-1mA	-	35	nS
t _r	Rise time		-	35	nS
t _s	Storage time		-	225	nS
t _f	Fall time	V _{CC} =-3V, I _C =-10mA I _{B1} =-I _{B2} =- 1mA	-	75	nS

Typical Performance Characteristics ($T_A=25^\circ\text{C}$ unless otherwise specified)

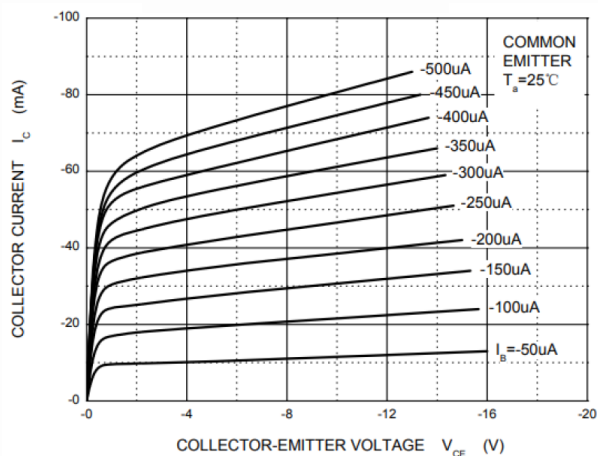


Figure 1. Static Characteristic

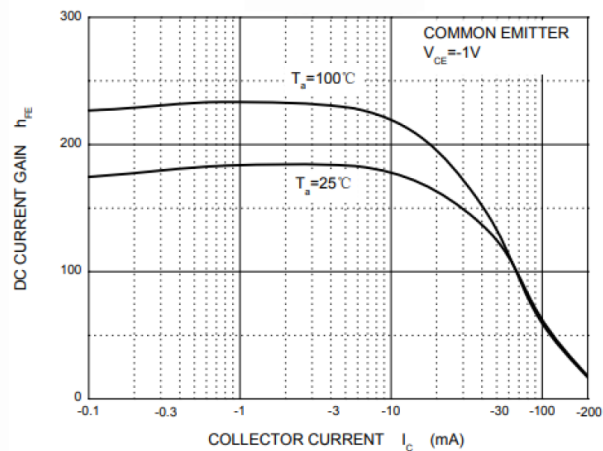


Figure 2. DC Current Gain vs. Collector Current

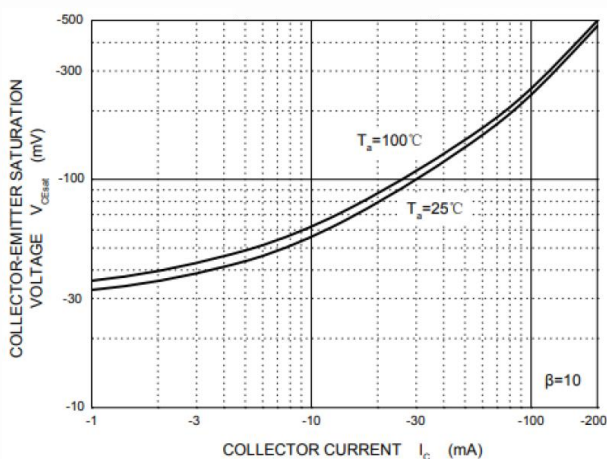


Figure 3. Collector-Emitter Saturation Voltage vs. Collector Current

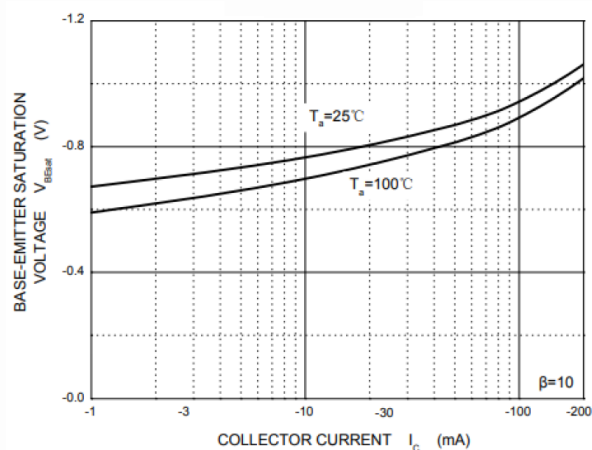


Figure 4. Base-Emitter Saturation Voltage vs. Collector Current

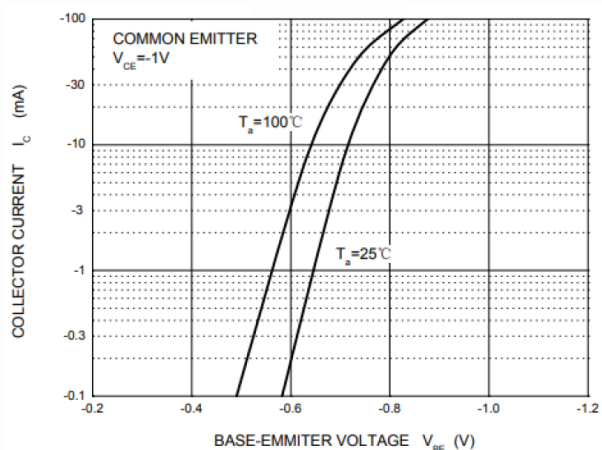


Figure 5. Collector Current vs. Base-Emitter Voltage

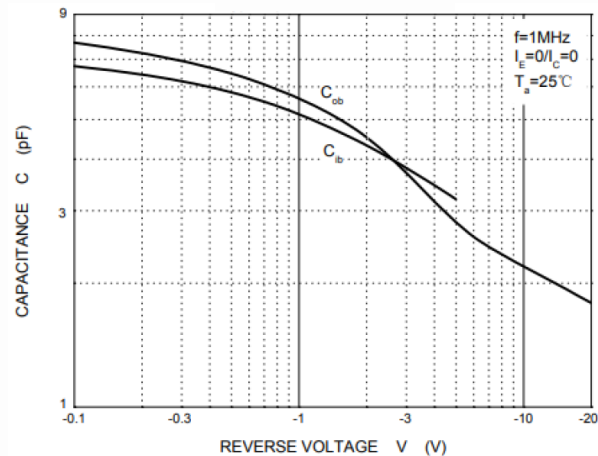


Figure 6. Capacitance vs. Reverse Voltage

Typical Performance Characteristics

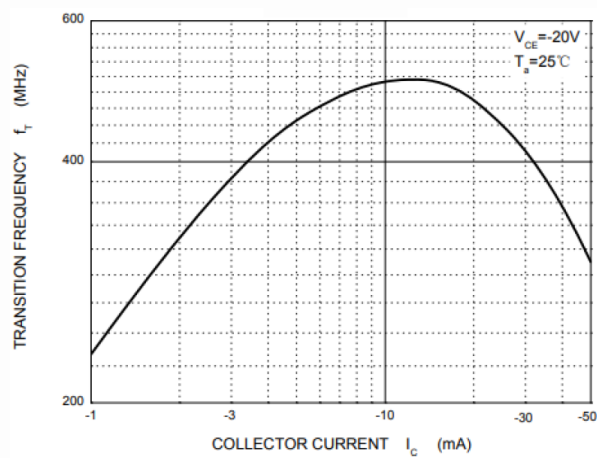


Figure 7. Transition Frequency vs. Collector Current

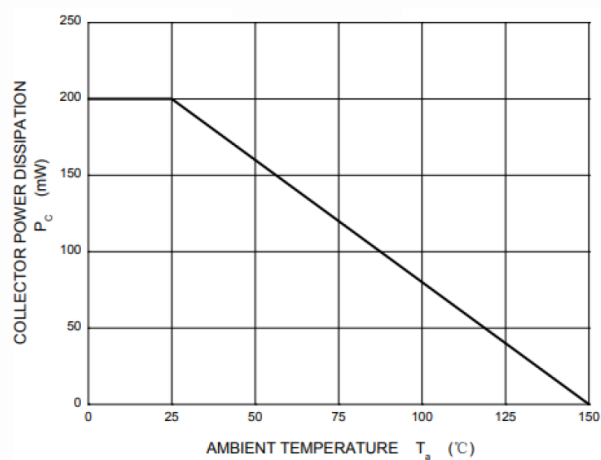
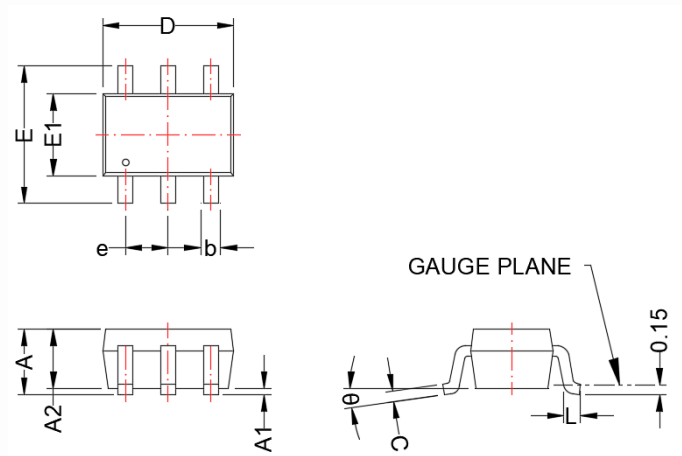


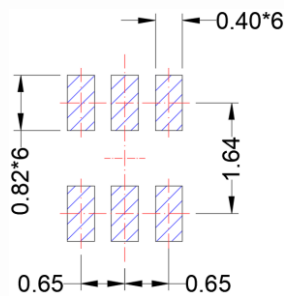
Figure 8. Collector Power Dissipation vs. Ambient Temperature

SOT-363

Package Dimension



Recommended Land Pattern



Unit:mm

Dimensions				
Symbol	Millimeters		Inches	
	Min	Max	Min	Max
A	0.80	1.10	0.031	0.043
A1	0.00	0.10	0.000	0.004
A2	0.70	1.00	0.028	0.039
b	0.15	0.35	0.006	0.014
c	0.08	0.25	0.003	0.010
D	1.80	2.20	0.071	0.087
E	1.80	2.40	0.071	0.094
E1	1.15	1.35	0.045	0.053
e	0.65 BSC		0.026 BSC	
L	0.26	0.46	0.010	0.018
θ	0°	8°	0°	8°

NOTE:
Dimensions are exclusive of Burrs, Mold Flash & Tie Bar extrusions.

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