

MMBT3904ZK

Rev.D Mar.-2025



DATA SHEET

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Silicon NPN transistor in a DFN1006-3L Plastic Package.

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Low current, Low voltage, HF Product.

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Absolute Maximum Ratings(Ta=25℃ ;)

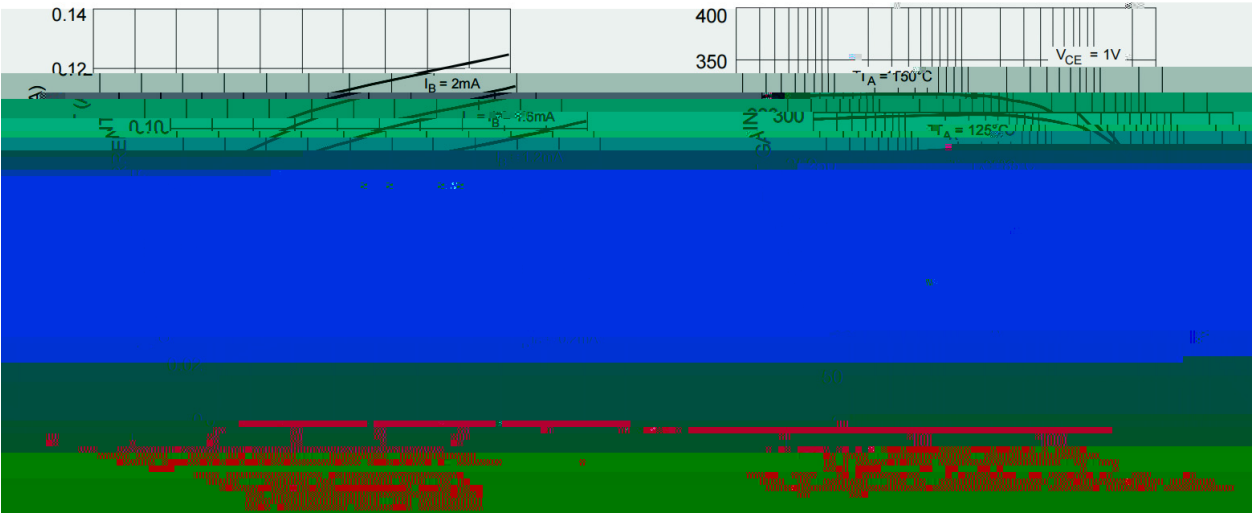
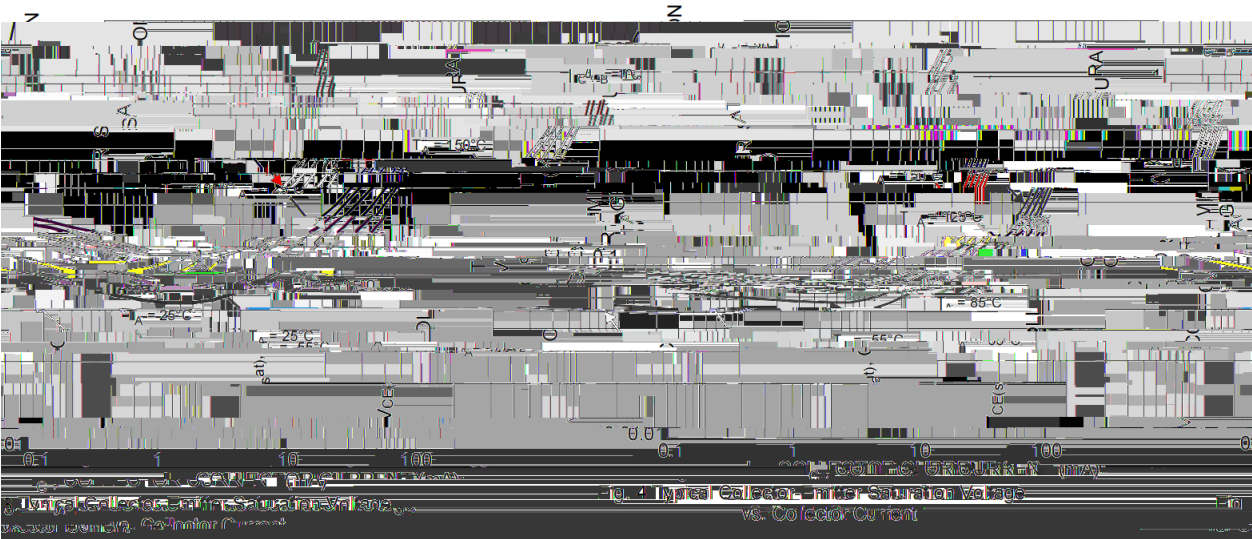
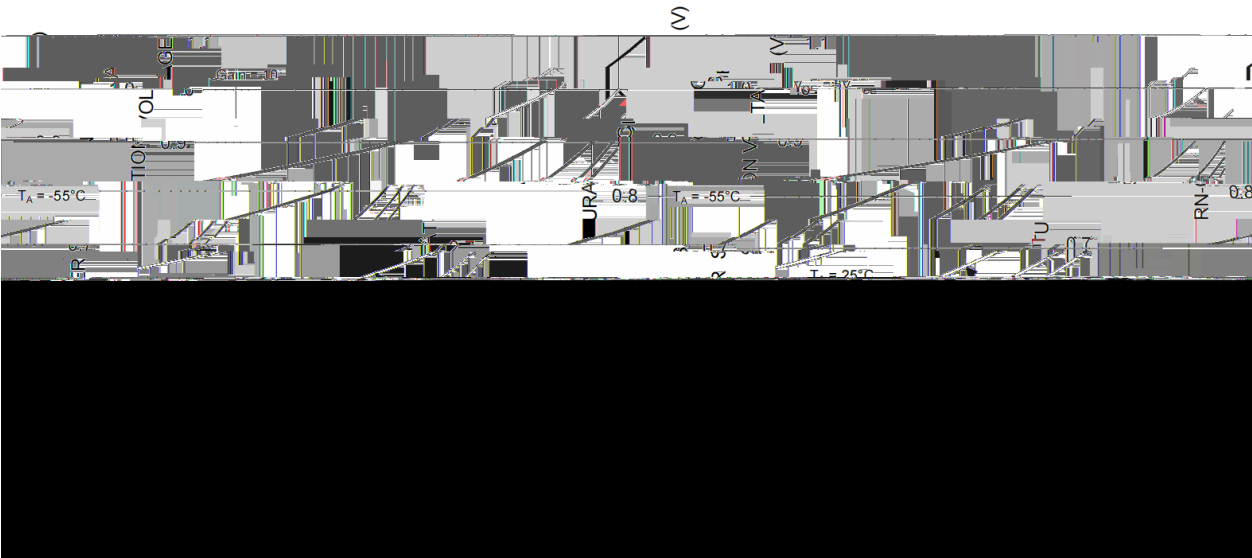
@ f Parameter	Symbol	f > Rating	% y Unit
Collector to Base Voltage	V _{CBO}	60	V
Collector to Emitter Voltage	V _{CEO}	40	V
Emitter to Base Voltage	V _{EBO}	6.0	V
Collector Current	I _C	200	mA
*Collector Power Dissipation	P _C	100	mW
Junction Temperature	T _j	150	
Storage Temperature Range	T _{stg}	-55 ~ 150	
Thermal Resistance, Junction to Ambient	R _{thJA}	310	/W
Thermal Resistance, Junction to Lead	R _{thJL}	120	/W

* É x " PCB á Mount on the PCBA

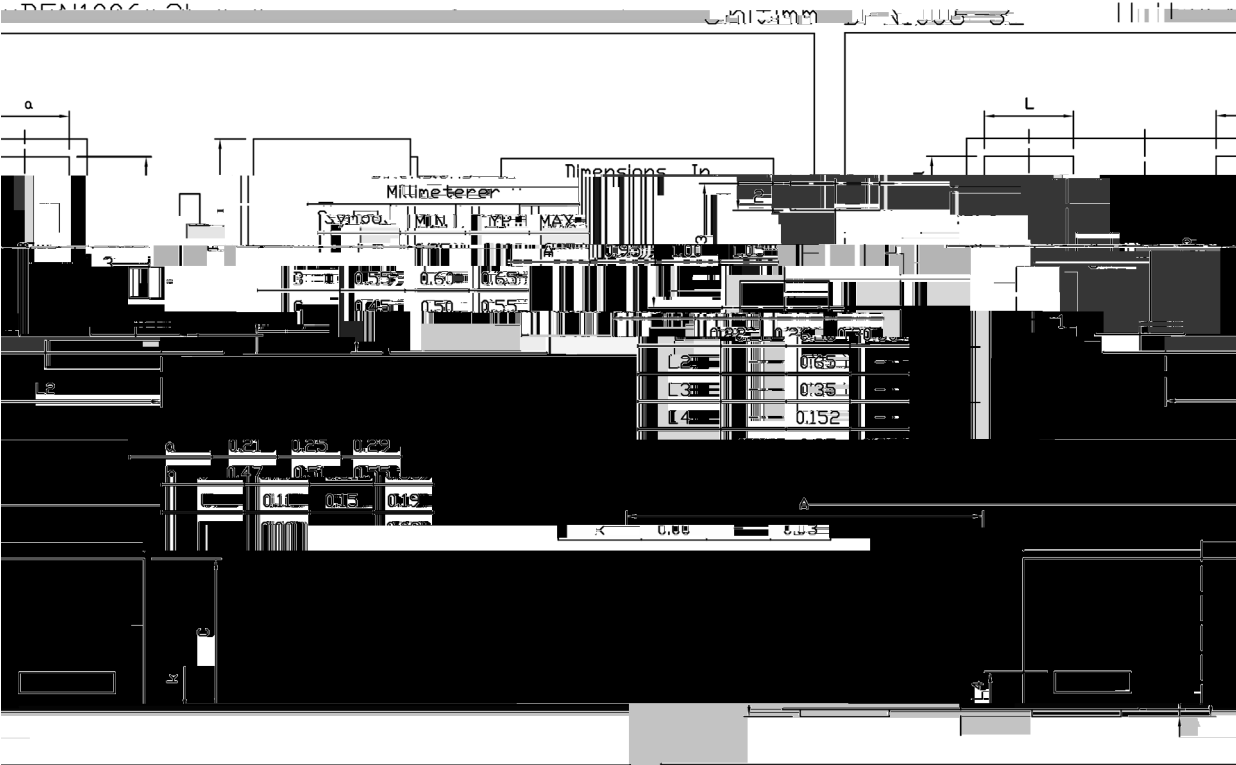
Electrical Characteristics(Ta=25℃ ;)

@ f Parameter	Symbol	y i Ú ^ Test Conditions	Â 4 > Min	Á ° > Typ	Â Ý > Max	% y Unit
Collector to Base Breakdown Voltage	V _{CBO}	I _C =10 A I _E =0	60			V
Collector to Emitter Breakdown Voltage	V _{CEO}	I _C =1.0mA I _B =0	40			V
Emitter to Base Breakdown Voltage	V _{EBO}	I _E =10 A I _C =0	6.0			V
Collector Cut-Off Current	I _{CBO}	V _{CB} =30V I _E =0			0.05	A
Emitter Cut-Off Current	I _{EBO}	V _{EB} =3.0V I _C =0			0.05	A
DC Current Gain	h _{FE(1)}	V _{CE} =1.0V I _C =10mA	100		300	
	h _{FE(2)}	V _{CE} =1.0V I _C =100mA	30			
	h _{FE(3)}	V _{CE} =1.0V I _C =50mA	60			
	h _{FE(4)}	V _{CE} =1.0V I _C =1.0mA	70			
	h _{FE(5)}	V _{CE} =1.0V I _C =0.1mA	40			
Collector-Emitter Saturation Voltage	V _{CE(sat)(1)}	I _C =10mA I _B =1.0mA			0.2	V
	V _{CE(sat)(2)}	I _C =50mA I _B =5.0mA			0.3	V
Base-Emitter Saturation Voltage	V _{BE(sat)(1)}	I _C =10mA I _B =1.0mA	0.65		0.85	V
	V _{BE(sat)(2)}	I _C =50mA I _B =5.0mA			0.95	V
Transition Frequency	f _T	V _{CE} =20V I _C =10mA f=100MHz	300			MHz
Output Capacitance	C _{ob}	V _{CB} =5.0V f=1.0MHz			4.0	pF
Storage Time	t _{stg}	V _{CC} =3.0V I _C =10mA I _{B1} =-I _{B2} =1.0mA			200	ns
Fall Time	t _f	V _{CC} =3.0V I _C =10mA I _{B1} =-I _{B2} =1.0mA			50	ns
Delay Time	t _d	V _{CC} =3.0V V _{BE} =0.5V I _C =10mA I _{B1} =1.0mA			35	ns
Rise Time	t _r	V _{CC} =3.0V V _{BE} =0.5V I _C =10mA I _{B1} =1.0mA			35	ns
Input Capacitance	C _{ib}	V _{EB} =0.5V f=1.0MHz			8.0	pF

Electrical Characteristic Curve

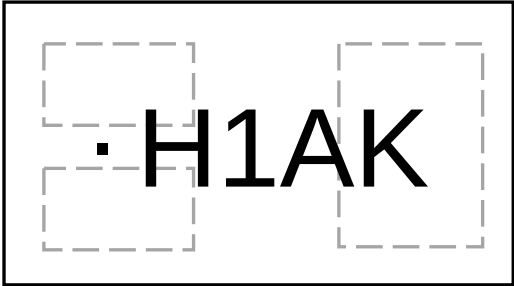


Ø □ =) ☎ / Package Dimensions



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, M y f / Marking Instructions



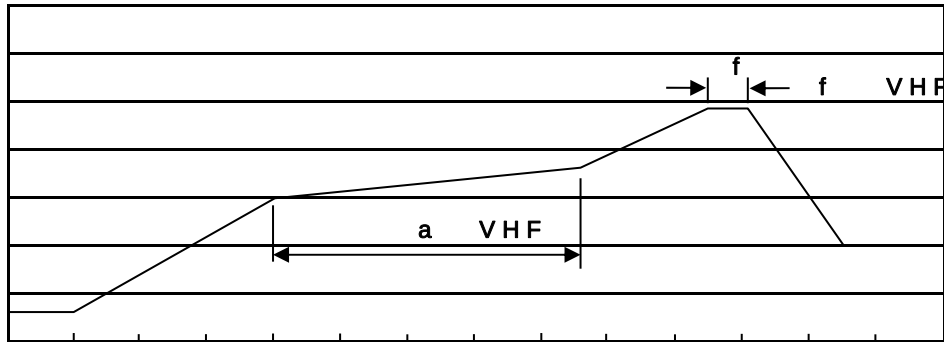
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· y , [W A
1AK y ° Z W A

Note:
· y Identify
· y Company Code
1AK y Product Type Code



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7HPSHUDWXUH



7LPH VHF

ačy

10•Ä½“† 150½180 - kž• 60½90sec;

20•Q>“† 245 r5 - kž•4 Ò 5 r0.5sec;

30•D Nò i Ò 0 ,† 2½10 - /sec.

Note:

1.Preheating:150~180 - , Time:60~90sec.

2.Peak Temp.:245 r5 - , Duration:5 r0.5sec.

3. Cooling Speed: 2~10 - /sec.

ÂD /Că p ¯ »] / Resistance to Soldering Heat Test Conditions

“†y 260 r5 -

ž•y 10 r1 sec.

Temp.:260±5

Time:10±1 sec

G P á / Packaging SPEC.

2 & x / REEL

Package Type 7>û ~ E	Units ;>û H					Dimension ;>û p . (unit /Æmm³)		
	Units/Reel / --	Reels/Inner Box -- /-	Units/Inner Box /-	Inner Boxes/Outer Box - /1ç	Units/Outer Box /1ç	Reel	Inner Box	Outer Boxç
DFN1006-3L	10,000	10	100,000	6	600,000	7 s ×8	180×120×180	390×385×205

„Đ y f / Notices