



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of "Quality Parts,Customers Priority,Honest Operation,and Considerate Service",our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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MMST3906

Features

- Epitaxial Planar Die Construction
- Complementary NPN Type available (MMST3904)
- Ultra-small surface mount package
- Marking : K5N
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisture Sensitivity Level 1
- Halogen free available upon request by adding suffix "-HF"

Maximum Ratings

Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	40	V
V_{EBO}	Emitter-Base Voltage	5.0	V
I_C	Collector Current-Continuous ⁽¹⁾	200	mA
P_C	Power dissipation ⁽¹⁾	200	mW
T_J	Junction Temperature	-55 to +150	°C
T_{STG}	Storage Temperature	-55 to +150	°C

Electrical Characteristics @ 25°C Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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OFF CHARACTERISTICS ⁽²⁾

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ($I_C=1.0mA$, $I_B=0$)	40	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ($I_C=10\mu A$, $I_E=0$)	40	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage ($I_C=10\mu A$, $I_C=0$)	5.0	---	Vdc
I_{CEX}	Collector-Base Cutoff Current ($V_{CE}=30Vdc$, $V_{EB(OFF)}=3.0Vdc$)	---	50	nAdc
I_{BL}	Emitter-Base Cutoff Current ($V_{CE}=30Vdc$, $V_{EB(OFF)}=3.0Vdc$)	---	50	nAdc

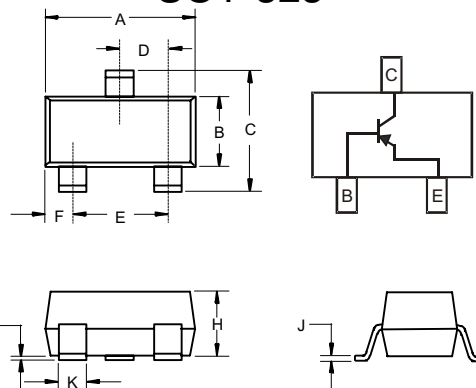
ON CHARACTERISTICS ⁽²⁾

h_{FE}	DC Current Gain ($I_C=100\mu A$, $V_{CE}=1.0Vdc$) ($I_C=1.0mA$, $V_{CE}=1.0Vdc$) ($I_C=10mA$, $V_{CE}=1.0Vdc$) ($I_C=50mA$, $V_{CE}=1.0Vdc$) ($I_C=500mA$, $V_{CE}=1.0Vdc$)	60 80 100 60 30	---	---
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ($I_C=10mA$, $I_B=1.0mA$) ($I_C=50mA$, $I_B=5.0mA$)	---	0.20 0.30	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ($I_C=10mA$, $I_B=1.0mA$) ($I_C=50mA$, $I_B=5.0mA$)	0.65 ---	0.85 0.95	Vdc

Note: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width<300us, duty cycle<2%

PNP Small Signal Transistors

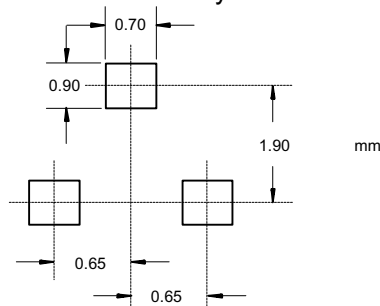
SOT-323



DIMENSIONS

DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.079	.087	2.00	2.20	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.012	.016	.30	.40	

Suggested Solder Pad Layout



SMALL SIGNAL CHARACTERISTICS

C_{obo}	Output Capacitance ($V_{CB}=5.0Vdc, f=1.0MHz, I_E=0$)	---	4.5	pF	
C_{ibo}	Input Capacitance ($V_{EB}=0.5Vdc, f=1.0MHz, I_C=0$)	---	10	pF	
h_{ie}	Input Impedance	$V_{CE}=10Vdc, I_C=1.0mA, f=1.0KHz$	2.0	12	kohms
h_{re}	Voltage Feedback Ratio		0.1	10	$\times 10^{-4}$
h_{fe}	Small Signal Current Gain		100	400	---
h_{oe}	Output Admittance		3.0	60	μS
f_T	Current Gain-Bandwidth Product ($V_{CE}=20Vdc, I_C=10mA, f=100MHz$)	300	---	MHz	
NF	Noise Figure ($V_{CE}=5.0Vdc, I_C=100\mu A, R_S=1.0KOHMS, f=1.0KHz$)	---	4.0	dB	

SWITCHING CHARACTERISTICS

t_d	Delay Time	$V_{CC}=3.0Vdc, I_C=10mA, V_{BE(off)}=0.5Vdc, I_{B1}=1.0mA$	---	35	ns
t_r	Rise Time		---	35	ns
t_s	Storage Time	$V_{CC}=3.0Vdc, I_C=10mA, I_{B1}=I_{B2}=1.0mA$	---	225	ns
t_f	Fall Time		---	75	ns



Micro Commercial Components

Ordering Information :

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

Note : Adding "-HF" suffix for halogen free, eg. Part Number-TP-HF

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