Micro Commercial Components
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MMST3904

NPN Small Signal Transistors

Features

- Epitaxial Planar Die Construction
- Complementary PNP Type available (MMST3906)
- Ultra-small surface mount package
- Marking : K2N
- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Epoxy meets UL 94 V-0 flammability rating
- Moisure Sensitivity Level 1

Maxim um Ratings

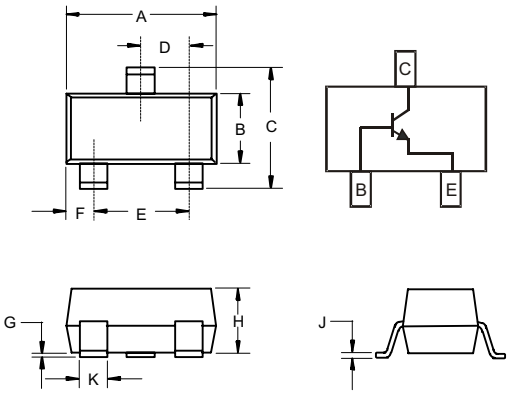
Symbol	Rating	Rating	Unit
V_{CEO}	Collector-Emitter Voltage	40	V
V_{CBO}	Collector-Base Voltage	60	V
V_{EBO}	Emitter-Base Voltage	6.0	V
I_C	Collector Current-Continuous (1)	200	mA
P_C	Power dissipation (1)	200	mW
T_J	Junction Temperature	-55 to +150	^{O}C
T_{STG}	Storage Temperature	-55 to +150	^{O}C

Electrical Characteristics @ 25ºC Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
OFF CHARACTERISTICS (2)				
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage (I_C=1.0mAdc, I_B=0)	40	---	Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage (I_C=10uAdc, I_E=0)	60	---	Vdc
$V_{(BR)EBO}$	Collector-Emitter Breakdown Voltage (I_E=10uAdc, 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=100uAdc, V_{CE}=1.0Vdc)	40	---	
	(I_C=1.0mAdc, V_{CE}=1.0Vdc)	70	---	
	(I_C=10mAdc, V_{CE}=1.0Vdc)	100	300	---
	(I_C=50mAdc, V_{CE}=1.0Vdc)	60	---	
	(I_C=500mAdc, V_{CE}=1.0Vdc)	30	---	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage			
	(I_C=10mAdc, I_B=1.0mAdc)	---	0.25	Vdc
	(I_C=50mAdc, I_B=5.0mAdc)	---	0.30	
$V_{BE(sat)}$	Base-Emitter Saturation Voltage			
	(I_C=10mAdc, I_B=1.0mAdc)	0.65	0.85	Vdc
	(I_C=50mAdc, I_B=5.0mAdc)	---	0.95	

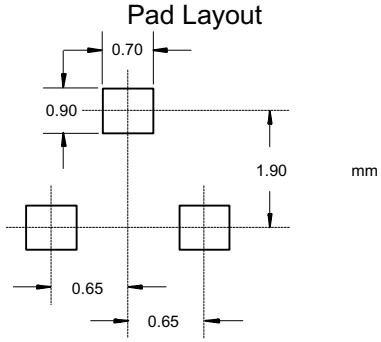
Note: 1. Valid provided that terminals are kept at ambient temperature.
2. Pulse test: Pulse width<300us, duty cycle<2%

SOT-323



DIMENSIONS					
	INCHES		MM		
DIM	MIN	MAX	MIN	MAX	NOTE
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)		---	4.0	pF
C_{ibo}	Input Capacitance (V_{EB}=0.5Vdc, f=1.0MHz, I_C=0)		---	8.0	pF
h_{ie}	Input Impedance	V_{CE}=10Vdc, I_C=1.0mAdc, f=1.0KHz	1.0	10	kohms
h_{re}	Voltage Feedback Ratio		0.5	8.0	X 10^{-4}
h_{fe}	Small Signal Current Gain		100	400	---
h_{oe}	Output Admittance		1.0	40	uS
f_T	Current Gain-Bandwidth Product (V_{CE}=20Vdc, I_C=10mAdc, f=100MHz)		300	---	NHz
NF	Noise Figure (V_{CE}=5.0Vdc, I_C=100uAdc, R_S=1.0KOHMS, f=1.0KHz)		---	5.0	dB

SWITCHING CHARACTERISTICS

td	Delay Time	V_{CC}=3.0Vdc, I_C=100uAdc, $V_{BE(off)}$=0.5Vdc, I_{B1}=1.0mAdc	---	35	ns
tr	Rise Time		---	35	ns

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Ordering Information :

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

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