



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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Micro Commercial Components



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# MMDT3904

200mW

Plastic-Encapsulate  
Transistors

## Features

- Lead Free Finish/RoHS Compliant ("P" Suffix designates RoHS Compliant. See ordering information)
- Collector Current:  $I_C=0.2A$
- Epitaxial planar die construction
- Ideal for low power amplification and switching
- Marking: K6N
- 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
$P_C$	Power dissipation <sup>(1)</sup>	200	mW
$R_{THJA}$	Thermal Resistance	625	$^{\circ}C/W$
$T_J$	Junction Temperature	-55 to +150	$^{\circ}C$
$T_{STG}$	Storage Temperature	-55 to +150	$^{\circ}C$

## Electrical Characteristics @ 25 $^{\circ}C$ Unless Otherwise Specified

Symbol	Parameter	Min	Max	Units
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### OFF CHARACTERISTICS

$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage ( $I_C=1.0mA$ , $I_B=0$ )	40		Vdc
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage ( $I_C=10\mu A$ , $I_E=0$ )	60		Vdc
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage ( $I_E=10\mu A$ , $I_C=0$ )	5.0		Vdc
$I_{EBO}$	Emitter Cutoff Current ( $V_{EB}=5Vdc$ , $I_C=0$ )		50	nAdc
$I_{CEO}$	Collector Cutoff Current ( $V_{CE}=30Vdc$ , $I_B=0$ )		50	nAdc
$I_{CBO}$	Collect Cutoff Current ( $V_{CB}=30Vdc$ , $I_E=0$ )		50	nAdc

### ON CHARACTERISTICS

$h_{FE}$	DC Current Gain* ( $I_C=10mA$ , $V_{CE}=1.0Vdc$ ) ( $I_C=50mA$ , $V_{CE}=1.0Vdc$ )	100 60	300	
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage ( $I_C=50mA$ , $I_B=5.0mA$ )		0.3	Vdc
$V_{BE(sat)}$	Base-Emitter Saturation Voltage ( $I_C=50mA$ , $I_B=5.0mA$ )		0.95	Vdc

### SMALL-SIGNAL CHARACTERISTICS

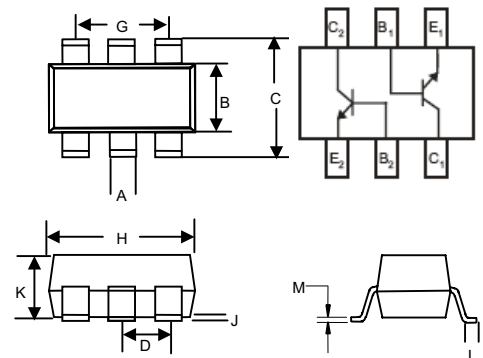
$f_r$	Current Gain-Bandwidth Product ( $I_C=10mA$ , $V_{CE}=20Vdc$ , $f=100MHz$ )	300		MHz
$C_{obo}$	Output Capacitance ( $V_{CB}=5.0Vdc$ , $I_E=0$ , $f=1.0MHz$ )		4.0	pF

### SWITCHING CHARACTERISTICS

$t_d$	Delay Time	$(V_{CC}=3.0Vdc, V_{BE}=0.5Vdc$	35	ns
$t_r$	Rise Time	$I_C=10mA, I_{B1}=1.0mA$	35	ns
$t_s$	Storage Time	$(V_{CC}=3.0Vdc, I_C=10mA$	200	ns
$t_f$	Fall Time	$I_{B1}=I_{B2}=1.0mA$	50	ns

Note: 1. Valid provided that terminals are kept at ambient temperature.

## SOT-363



DIM	DIMENSIONS				NOTE
	INCHES		MM		
A	.006	.014	0.15	0.35	
B	.045	.053	1.15	1.35	
C	.085	.096	2.15	2.45	
D	.026		0.65Nominal		
G	.047	.055	1.20	1.40	
H	.071	.087	1.80	2.20	
J	---	.004	---	0.10	
K	.035	.043	0.90	1.10	
L	.010	.018	0.26	0.46	
M	.003	.006	0.08	0.15	



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### 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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