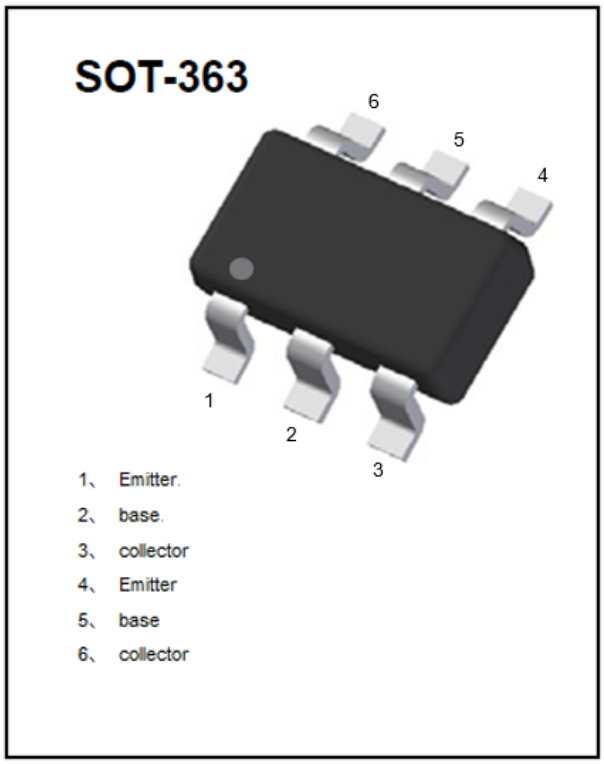
Dual NPN Small Signal Transistor



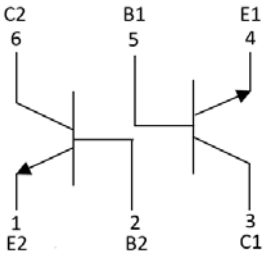
Features

- Epoxy meets UL-94 V-0 flammability rating
- Surface mount package ideally Suited for Automatic Insertion
- NPN
- Moisture Sensitivity Level 1
- Part no. with suffix “Q” means AEC-Q101 qualified

Mechanical Data

- **Package:** SOT-363
- **Terminals:** Tin plated leads, solderable per J-STD-002 and JESD22-B102
- **Marking:** K6N

Equivalent circuit



■ **Maximum Ratings** (Ta=25℃ Unless otherwise specified）

Item	Symbol	Unit	Conditions	Value
Collector-Emitter Voltage	V_{CEO}	V	I_C=1mAdc, I_B=0	40
Collector-Base Voltage	V_{CBO}	V	I_C=10uAdc, I_E=0	60
Emitter-Base Voltage	V_{EBO}	V	I_E=10uAdc, I_C=0	6
Collector Current	I_C	mA		200
Collector Power Dissipation (*)	P_C	mW		200
Junction Temperature	T_j	℃		-55 to +150
Storage Temperature	T_{stg}	℃		-55 to +150

(*) Device mounted on FR-4 PCB 1.0 x 1.0 x 0.06 inch

■ Electrical Characteristics (Ta=25℃ unless otherwise specified)

Item	Symbol	Unit	Conditions	Min	TYP	Max
Collector-base breakdown voltage	V_{CBO}	V	I_C=10μA,I_E=0	60		
Collector-emitter breakdown voltage	V_{CEO}	V	I_C =1mA,I_B=0	40		
Emitter-base breakdown voltage	V_{EBO}	V	I_E=10μA,I_C=0	6		
Collector-Base cut-off current	I_{CBO}	nA	V_{CB}=30V,I_E=0			50
Collector-Emitter cut-off current	I_{CEO}	nA	V_{CE}=30V,I_B=0			50
Emitter-Base Cut-off current	I_{EBO}	nA	V_{EB}=5V,I_C=0			50
DC current gain	$h_{FE(1)}$		V_{CE}=1V,I_C=10mA	100		300
	$h_{FE(2)}$		V_{CE}=1V,I_C=50mA	60		
Collector-emitter saturation voltage	$V_{CE(sat)}$	V	I_C=10mA,I_B=1mA			0.2
			I_C=50mA,I_B=5mA			0.3
Baser-emitter saturation voltage	$V_{BE(sat)}$	V	I_C=10mA,I_B=1mA	0.65		0.85
			I_C=50mA,I_B=5mA			0.95
Collector-base Output Capacitance	C_{obo}	pF	V_{CB}=5.0Vdc, f=1.0MHz, I_E=0			4
Transition frequency	f_T	MHz	V_{CE}=20V,I_C=10mA,f=100MHz	300		
Noise figure	NF	dB	V_{CE}=5V,Ic=0.1mA, f=1kHz,Rg=1KΩ			5

■ Ordering Information (Example)

PREFERED P/N	PACKING CODE	UNIT WEIGHT(g)	MINIMUM PACKAGE(pcs)	INNER BOX QUANTITY(pcs)	OUTER CARTON QUANTITY(pcs)	DELIVERY MODE
MMDT3904Q	F2	Approximate 0.009g	3000	30000	120000	7” reel

■ Characteristics (Typical)

Fig.1 - Static Characteristic

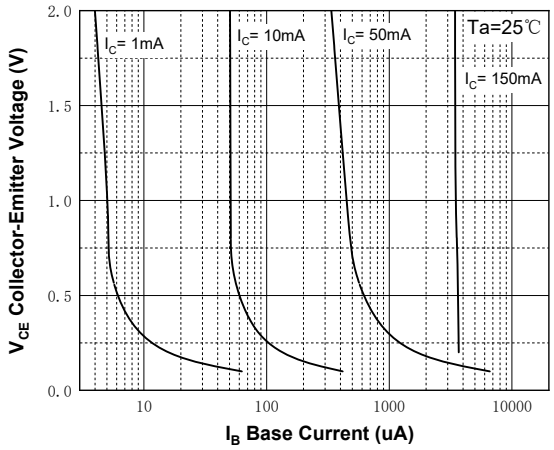


Fig.2 - DC Current Gain

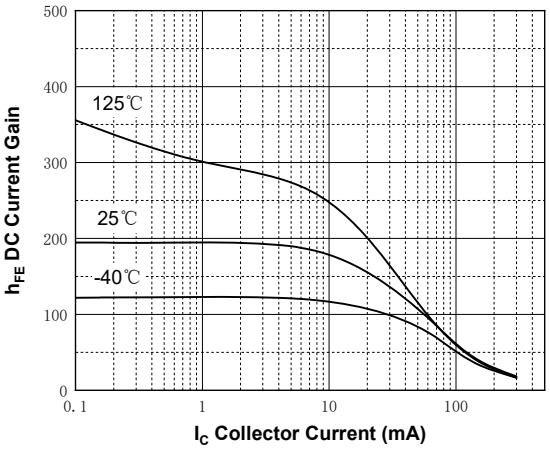


Fig.3 - Collector-Emitter Saturation Voltage

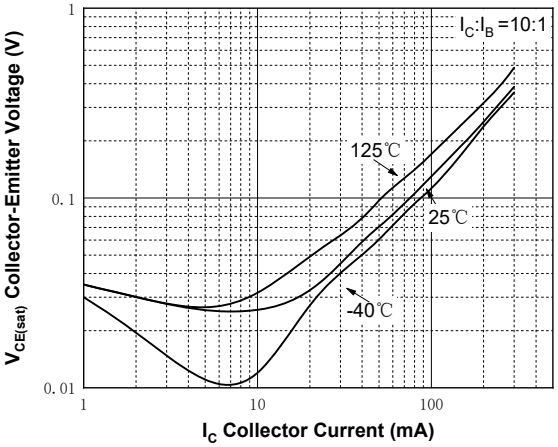


Fig.4 - Base-Emitter Saturation Voltage

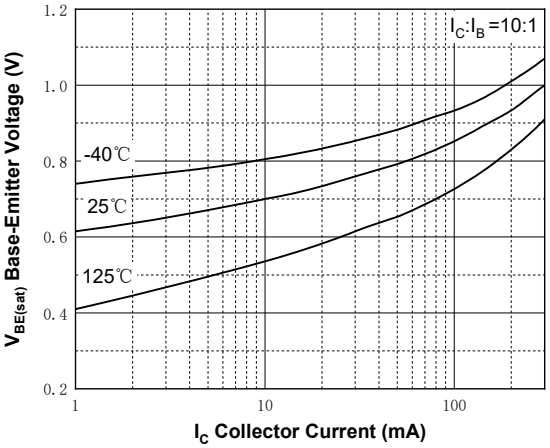
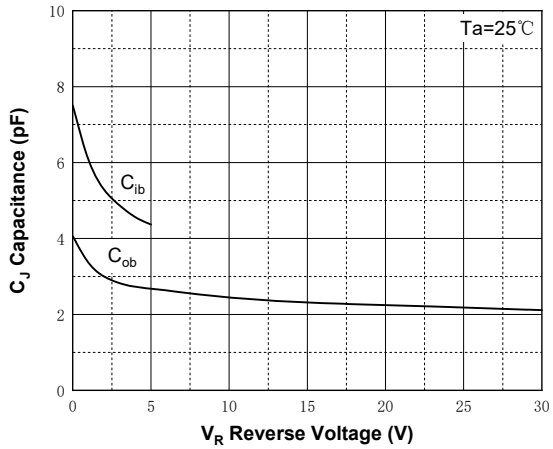
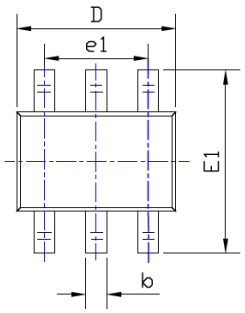


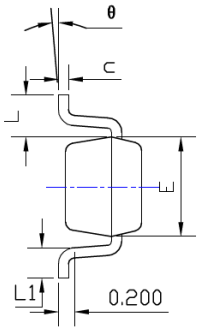
Fig.5 - Capacitance



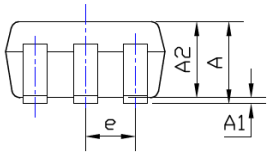
■SOT-363 Package Outline Dimensions & Suggested Pad Layout



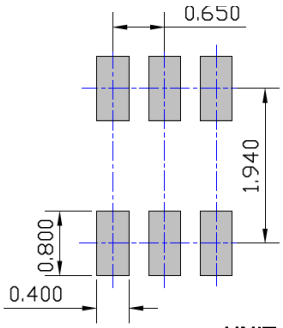
TOP VIEW



SIDE VIEW



SIDE VIEW



UNIT：mm

SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS			
	INCHES		Millimeter	
	MIN.	MAX.	MIN.	MAX.
A	0.035	0.043	0.900	1.100
A1	0.000	0.004	0.000	0.100
A2	0.035	0.039	0.900	1.000
b	0.006	0.014	0.150	0.350
c	0.004	0.010	0.100	0.250
D	0.071	0.087	1.800	2.200
E	0.045	0.053	1.150	1.350
E1	0.085	0.096	2.150	2.450
e	0.026TYP		0.650TYP	
e1	0.047	0.055	1.200	1.400
L	0.021REF		0.525REF	
L1	0.010	0.018	0.260	0.460
θ	0°	8°	0°	8°

NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

Disclaimer

The information presented in this document is for reference only. Yangzhou Yangjie Electronic Technology Co., Ltd. reserves the right to make changes without notice for the specification of the products displayed herein to improve reliability, function or design or otherwise.

The product listed herein is designed to be used with automotive electronics，are not designed for use in medical, life-saving, lifesustaining,or military,Yangjie or anyone on its behalf, assumes no responsibility or liability for any damages resulting from such improper use of sale.

This publication supersedes & replaces all information previously supplied. For additional information, please visit our website http:// www.21yangjie.com , or consult your nearest Yangjie's sales office for further assistance.