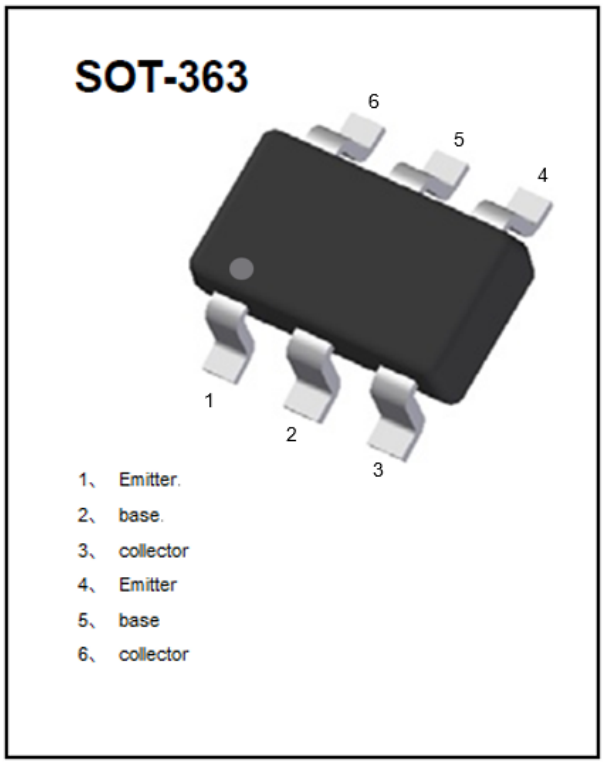
Dual NPN Small Signal Transistor



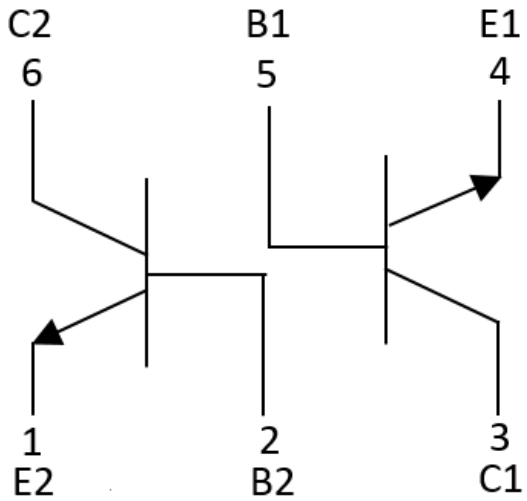
Features

- 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

■ 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

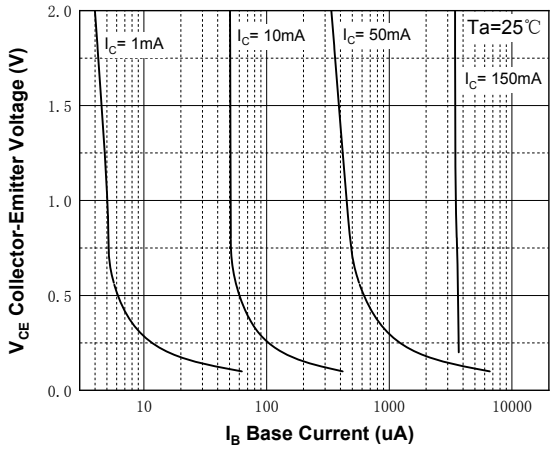


Fig.2 - DC Current Gain

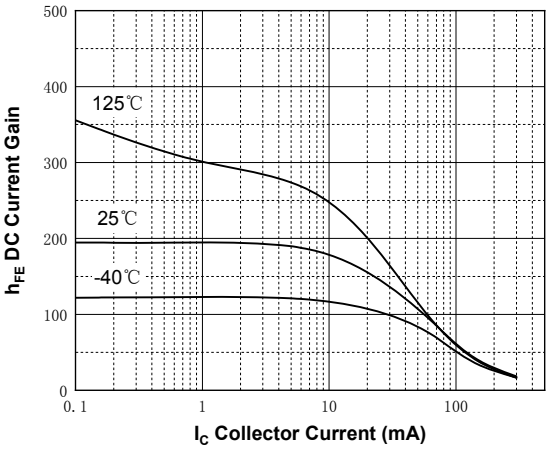


Fig.3 - Collector-Emitter Saturation Voltage

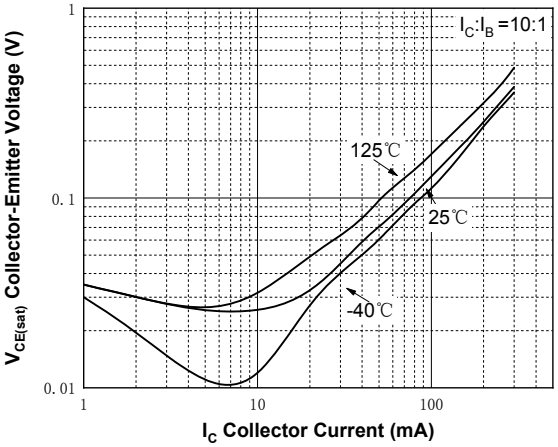


Fig.4 - Base-Emitter Saturation Voltage

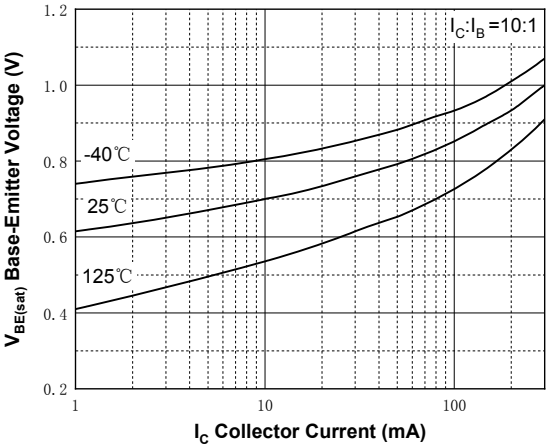
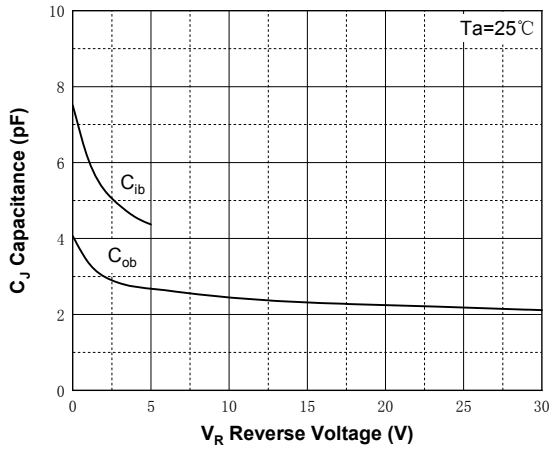
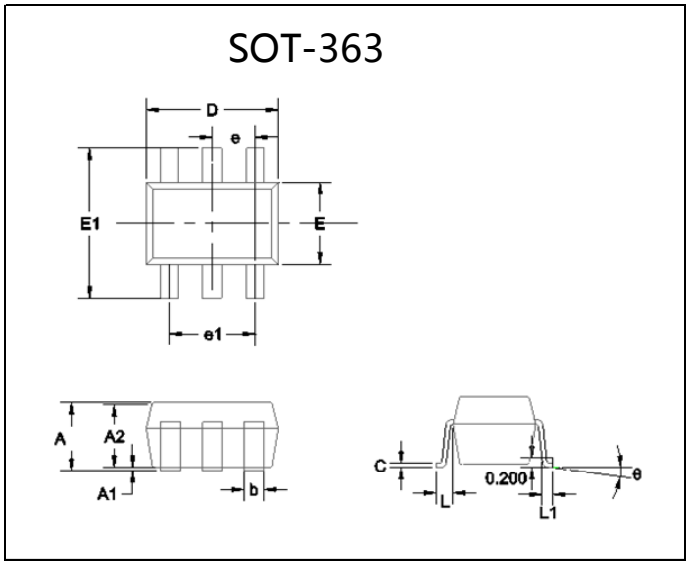


Fig.5 - Capacitance

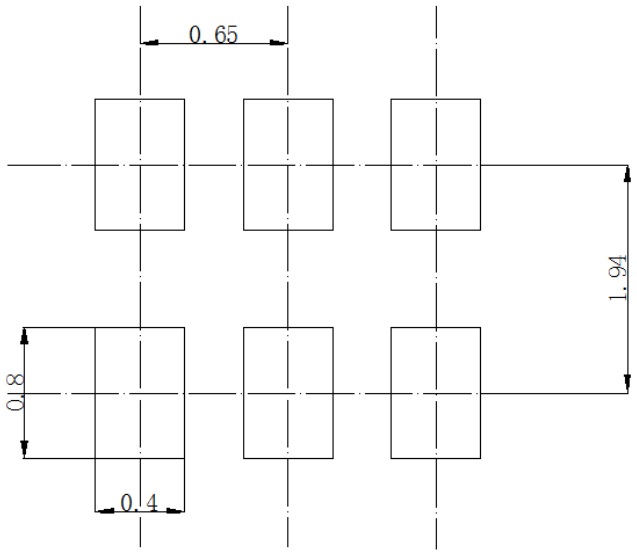


■SOT-363 Package Outline Dimensions



DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.035	0.043	0.90	1.10	
A1	0.000	0.004	0.00	0.10	
A2	0.035	0.039	0.90	1.00	
b	0.006	0.014	0.15	0.35	
c	0.002	0.010	0.05	0.25	
D	0.071	0.087	1.80	2.20	
E	0.045	0.053	1.15	1.35	
E1	0.085	0.096	2.15	2.45	
e	0.026Typ		0.65Typ		
e1	0.047	0.055	1.20	1.40	
L	0.021Typ		0.525Typ		
L1	0.010	0.018	0.26	0.46	
θ	0°	8°	0°	8°	

■SOT-363 Soldering Footprint



Unit：mm

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Rev	Date	Revision
1.0	29-Sep-21	Add Datasheet