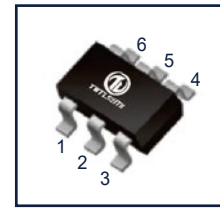
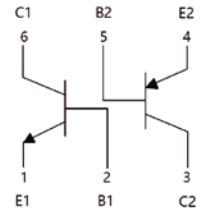


Features

- Epoxy meets UL-94 V-0 flammability rating
- Surface mount package ideally Suited for Automatic Insertion
- NPN/PNP



SOT-363



Equivalent Circuit

Ordering information

Product ID	Pack	Naming rule	Marking	hFE(1)	Qty(PCS)
MMDT3946	SOT-363	MMDT3946 产品名称 product name	K46	100-300	3000

TR1 NPN Pin1、2、6 Maximum Ratings (TA=25℃)

Symbol	Parameter	Value	Unit
V _{CBO}	Collector-Base Voltage	60	V
V _{CEO}	Collector-Emitter Voltage	40	V
V _{EBO}	Emitter-Base Voltage	6	V
I _C	Collector Current	0.2	A
P _C	Collector Power Dissipation	200	mW
T _J , T _{stg}	Operation Junction And Storage Temperature Range	-55 ~ +150	℃

TR1 NPN Pin1、2、6 Electrical Characteristics (TA=25℃)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
V _{(BR)CBO}	Collector-base breakdown voltage	I _C =10μA, I _E =0	60			V
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _C =1mA, I _B =0	40			V
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E =10μA, I _C =0	6			V
I _{CBO}	Collector cut-off current	V _{CB} =30V, I _E =0			50	nA
I _{CEO}	Collector cut-off current	V _{CE} =30V, I _B =0			50	nA
I _{EBO}	Emitter cut-off current	V _{EB} =5V, I _C =0			50	nA
h _{FE(1)}	DC current gain	V _{CE} =1V, I _C =0.1mA	40			
h _{FE(2)}		V _{CE} =1V, I _C =1mA	70			
h _{FE(3)}		V _{CE} =1V, I _C =10mA	100		300	
h _{FE(4)}		V _{CE} =1V, I _C =50mA	60			
h _{FE(5)}		V _{CE} =1V, I _C =100mA	30			
V _{CE(sat)1}	Collector-emitter saturation voltage	I _C =10mA, I _B =1mA			0.2	V
V _{CE(sat)2}		I _C =50mA, I _B =5mA			0.3	V
V _{BE(sat)1}	Base-emitter saturation voltage	I _C =10mA, I _B =1mA	0.65		0.85	V
V _{BE(sat)2}		I _C =50mA, I _B =5mA			0.95	V
f _T	Transition frequency	V _{CE} =20V, I _C =20mA, f=100MHz	300			MHz
C _{ob}	Collector output capacitance	V _{CB} =5V, I _E =0, f=1MHz			4	pF
t _d	Delay time	V _{CC} =3V, I _C =10mA, V _{BE} =0.5V, I _{B1} =1mA			35	nS
t _r	Rise time				35	nS
t _s	Storage time	V _{CC} =3V, I _C =10mA, I _{B1} =- I _{B2} =1mA			200	nS
t _f	Fall time				50	nS

TR2 PNP Pin3、4、5 Maximum Ratings (TA=25℃)

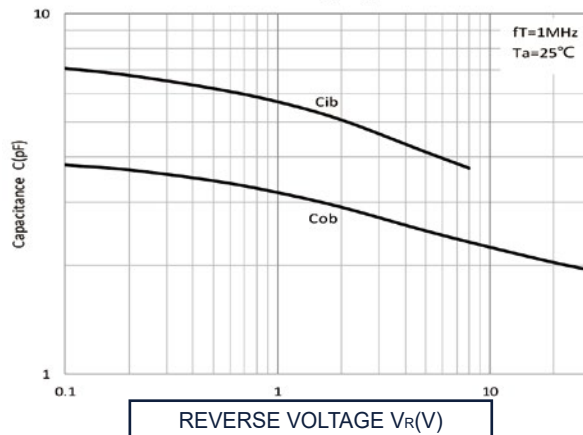
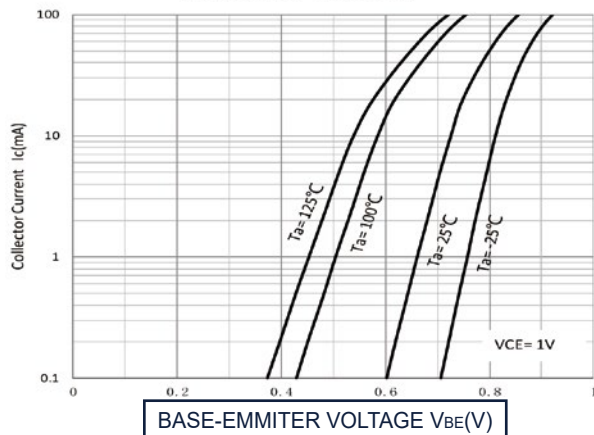
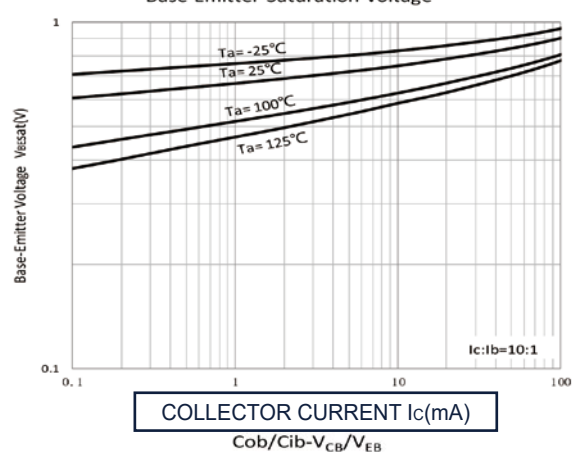
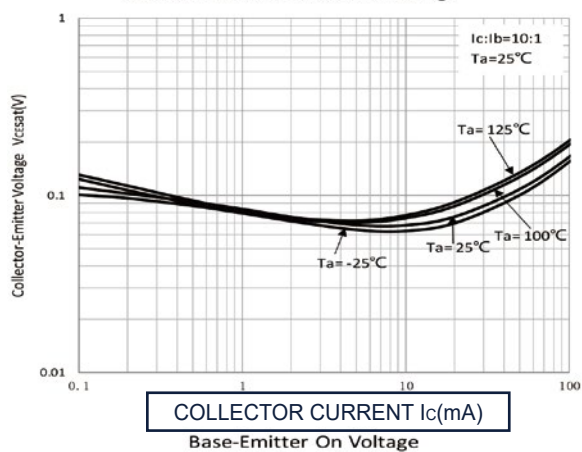
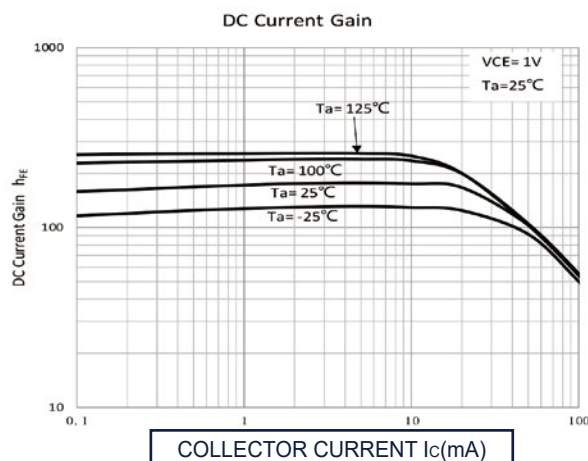
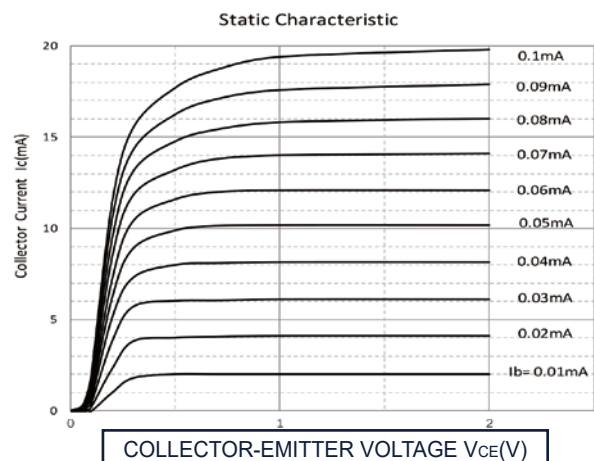
Symbol	Parameter	Value	Uniat
V _{CB0}	Collector-Base Voltage	-40	V
V _{CE0}	Collector-Emitter Voltage	-40	V
V _{EB0}	Emitter-Base Voltage	-5	V
I _c	Collector Current	-0.2	A
P _c	Collector Power Dissipation	200	mW
T _j , T _{stg}	Operation Junction And Storage Temperature Range	-55 ~ +150	℃

TR2 PNP Pin3、4、5 Electrical Characteristics (TA=25℃)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
V _{(BR)CBO}	Collector-base breakdown voltage	I _c =-10μA, I _E =0	-40			V
V _{(BR)CEO}	Collector-emitter breakdown voltage	I _c =-1mA, I _B =0	-40			V
V _{(BR)EBO}	Emitter-base breakdown voltage	I _E =-10μA, I _c =0	-5			V
I _{CBO}	Collector cut-off current	V _{CB} =-30V, I _E =0			-50	nA
I _{EBO}	Emitter cut-off current	V _{EB} =-5V, I _c =0			-50	nA
h _{FE(1)}	DC current gain	V _{CE} =-1V, I _c =-0.1mA	40			
h _{FE(2)}		V _{CE} =-1V, I _c =-1mA	70			
h _{FE(3)}		V _{CE} =-1V, I _c =-10mA	100		300	
h _{FE(4)}		V _{CE} =-1V, I _c =-50mA	60			
h _{FE(5)}		V _{CE} =-1V, I _c =-100mA	30			
V _{CE(sat)1}	Collector-emitter saturation voltage	I _c =-10mA, I _B =-1mA			-0.25	V
V _{CE(sat)1}		I _c =-50mA, I _B =-5mA			-0.4	V
V _{BE(sat)1}	Base-emitter saturation voltage	I _c =-10mA, I _B =-1mA	-0.65		-0.85	V
V _{BE(sat)2}		I _c =-50mA, I _B =-5mA			-0.95	V
f _T	Transition frequency	V _{CE} =-20V, I _c =-10mA, f=100MHz	250			MHz
C _{ob}	Collector output capacitance	V _{CB} =-5V, I _E =0, f=1MHz			4.5	pF
t _d	Delay time	V _{CC} =-3V, I _c =-10mA, V _{BE} =-0.5V, I _{B1} =1mA			35	nS
t _r	Rise time				35	nS
t _s	Storage time	V _{CC} =-3V, I _c =-10mA, I _{B1} =- I _{B2} =-1mA			225	nS
t _f	Fall time				75	nS



Typical Characteristics (NPN Transistor)





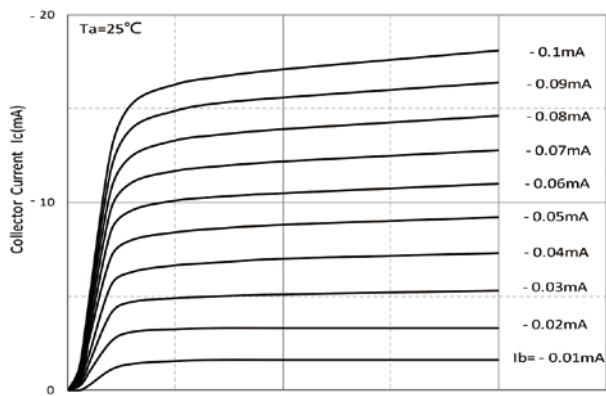
TWTLSEMI

TL-MMDT3946

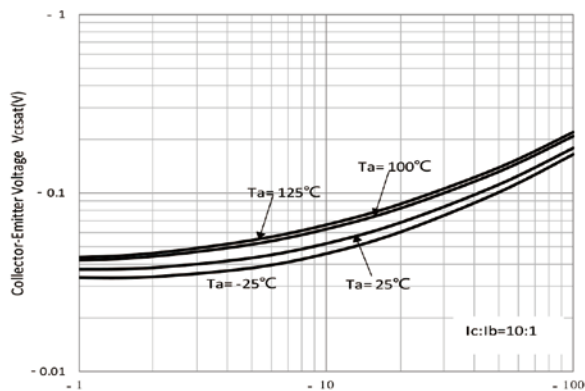
SOT-363 DUAL TRANSISTOR (NPN+PNP)

Typical Characteristics (PNP Transistor)

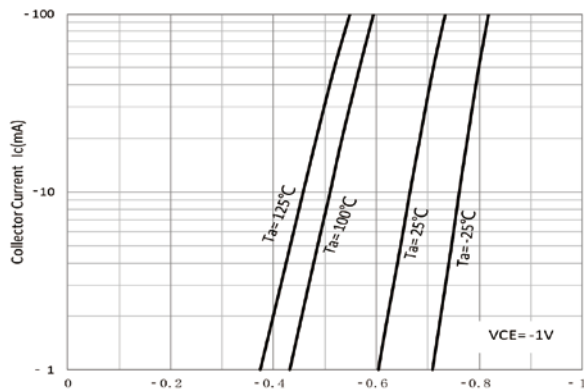
Static Characteristic

COLLECTOR-EMITTER VOLTAGE V_{CE} (V)

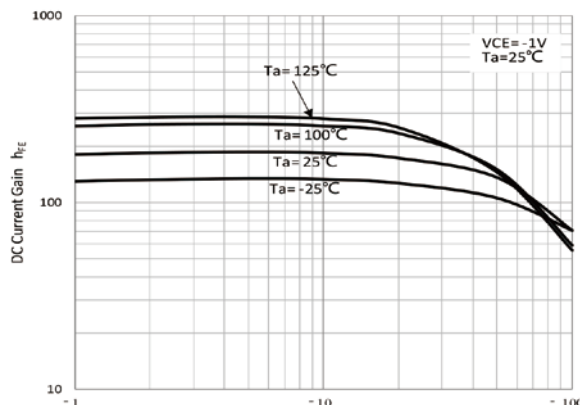
Collector-Emitter Saturation Voltage

COLLECTOR CURRENT I_c (mA)

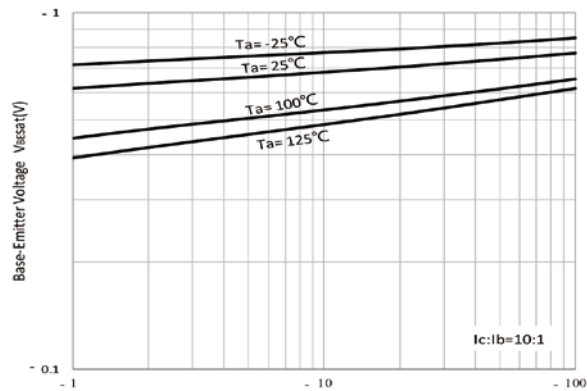
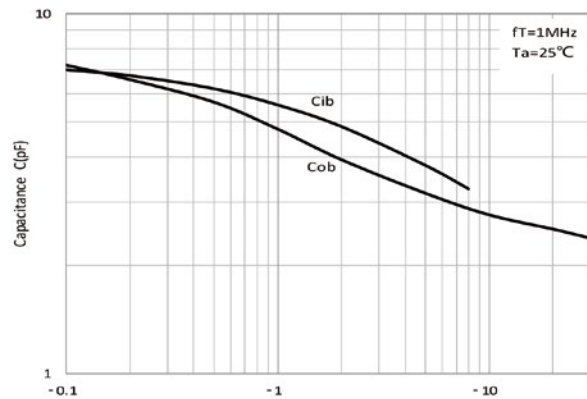
Base-Emitter On Voltage

BASE-EMITTER VOLTAGE V_{BE} (V)

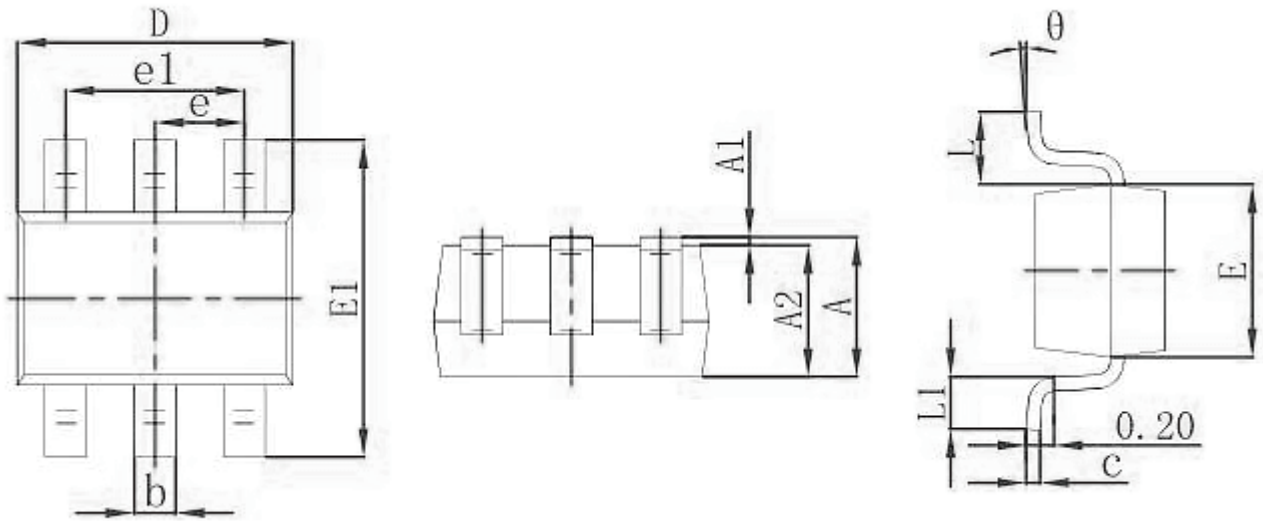
DC Current Gain

COLLECTOR CURRENT I_c (mA)

Base-Emitter Saturation Voltage

COLLECTOR CURRENT I_c (mA) $C_{ob}/C_{ib} - V_{CE}/V_{EB}$ REVERSE VOLTAGE V_R (V)

SOT-363 Package Outline Dimensions



Symbol	Dimensions in Millimeters		Dimensions in Inches	
	Min	Max	Min	Max
A	0.900	1.100	0.035	0.043
A1	0.000	0.100	0.000	0.004
A2	0.900	1.000	0.035	0.039
b	0.150	0.350	0.006	0.014
c	0.100	0.150	0.004	0.006
D	2.000	2.200	0.079	0.087
E	1.150	1.350	0.045	0.053
E1	2.150	2.450	0.085	0.096
e	0.650 TYP		0.026 TYP	
e1	1.200	1.400	0.047	0.055
L	0.525 REF		0.021 REF	
L1	0.260	0.460	0.010	0.018
θ	0°	8°	0°	8°