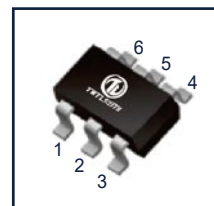
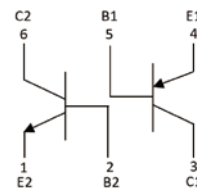


Features

- 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)
MMDT2227	SOT-363	MMDT2227 产品名称 product name	K27	100-300	3000

TR1 PNP Pin3、4、5 Maximum Ratings (TA=25℃)

Symbol	Parameter	Conditions	Value	Uniat
V _{CB0}	Collector-Base Voltage	I _C =-10μA, I _E =0	-60	V
V _{CE0}	Collector-Emitter Voltage	I _C =-10mA, I _B =0	-60	V
V _{EB0}	Emitter-Base Voltage	I _E =-10μA, I _C =0	-5	V
I _C	Collector Current		-0.6	A
P _C	Collector Power Dissipation		200	mW
T _J	Junction Temperature		150	℃
T _{stg}	Storage Temperature		-55 ~ +150	℃

TR1 PNP Pin3、4、5 Electrical Characteristics (TA=25℃)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{CB0}	Collector-base breakdown voltage	I _C =-10μA, I _E =0	-60			V
V _{CE0}	Collector-emitter breakdown voltage	I _C =-10mA, I _B =0	-60			V
V _{EB0}	Emitter-base breakdown voltage	I _E =-10μA, I _C =0	-5			V
I _{CB0}	Collector cut-off current	V _{CB} =-50V, I _E =0			-10	nA
I _{CEX}	Collector cut-off current	V _{CE} =-30V, V _{EB(off)} =-0.5V			-50	nA
I _{EB0}	Emitter cut-off current	V _{EB} =-5V, I _C =0			-10	nA
h _{FE(1)}	DC current gain	V _{CE} =-10V, I _C =-0.1mA	75			
h _{FE(2)}		V _{CE} =-10V, I _C =-1mA	100			
h _{FE(3)}		V _{CE} =-10V, I _C =-10mA	100		300	
h _{FE(4)}		V _{CE} =-10V, I _C =-150mA	100			
h _{FE(5)}		V _{CE} =-10V, I _C =-500mA	50			
V _{CE(sat)1}	Collector-emitter saturation voltage	I _C =-150mA, I _B =-15mA			-0.4	V
V _{CE(sat)1}		I _C =-500mA, I _B =-50mA			-1.6	V
V _{BE(sat)1}	Base-emitter saturation voltage	I _C =-150mA, I _B =-15mA			-1.3	V
V _{BE(sat)2}		I _C =-500mA, I _B =-50mA			-2.6	V
f _T	Transition frequency	V _{CE} =-20V, I _C =-50mA, f=100MHz	200			MHz
t _d	Delay time	V _{CC} =-30V, I _C =-150mA, I _{B1} =-15mA			10	nS
t _r	Rise time				40	nS
t _s	Storage time	V _{CC} =-6V, I _C =-150mA, I _{B1} =-I _{B2} =-15mA			225	nS
t _f	Fall time				60	nS

TR2 NPN Pin1、2、6 Maximum Ratings (TA=25℃)

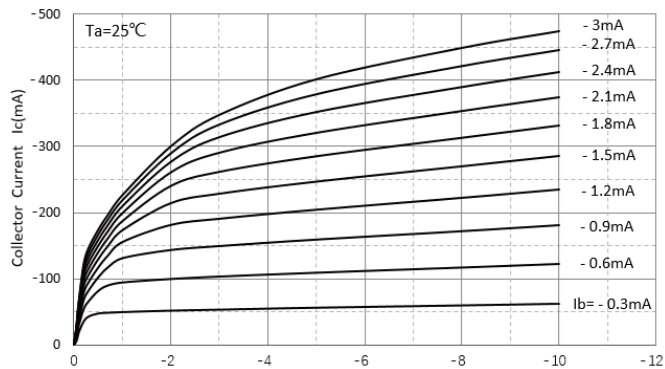
Symbol	Parameter	Conditions	Value	Uniat
V _{CBO}	Collector-Base Voltage	I _C =10μA, I _E =0	75	V
V _{CEO}	Collector-Emitter Voltage	I _C =10mA, I _B =0	40	V
V _{EB0}	Emitter-Base Voltage	I _E =10μA, I _C =0	6	V
I _C	Collector Current		0.6	A
P _C	Collector Power Dissipation		200	mW
T _J	Junction Temperature		150	℃
T _{stg}	Storage Temperature		-55 ~ +150	℃

TR2 NPN Pin1、2、6 Electrical Characteristics (TA=25℃)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
V _{CBO}	Collector-base breakdown voltage	I _C =10μA, I _E =0	75			V
V _{CEO}	Collector-emitter breakdown voltage	I _C =10mA, I _B =0	40			V
V _{EB0}	Emitter-base breakdown voltage	I _E =10μA, I _C =0	6			V
I _{CBO}	Collector cut-off current	V _{CB} =60V, I _E =0			10	nA
I _{CEX}	Collector cut-off current	V _{CE} =60V, V _{EB(off)} =3V			10	nA
I _{EBO}	Emitter cut-off current	V _{EB} =3V, I _C =0			10	nA
I _{BL}	Base cut-off Current	V _{CE} =60V, V _{EB(off)} =3V			20	nA
h _{FE(1)}	DC current gain	V _{CE} =10V, I _C =0.1mA	35			
h _{FE(2)}		V _{CE} =10V, I _C =1mA	50			
h _{FE(3)}		V _{CE} =10V, I _C =10mA	75			
h _{FE(4)}		V _{CE} =10V, I _C =150mA	100		300	
h _{FE(5)}		V _{CE} =1V, I _C =150mA	35			
h _{FE(6)}		V _{CE} =10V, I _C =500mA	40			
V _{CE(sat)1}	Collector-emitter saturation voltage	I _C =150mA, I _B =15mA			0.3	V
V _{CE(sat)1}		I _C =500mA, I _B =50mA			1	V
V _{BE(sat)1}	Base-emitter saturation voltage	I _C =150mA, I _B =15mA			1.2	V
V _{BE(sat)2}		I _C =500mA, I _B =50mA			2	V
f _T	Transition frequency	V _{CE} =20V, I _C =20mA, f=100MHz	300			MHz
t _d	Delay time	V _{CC} =30V, I _C =150mA, I _{B1} =15mA, V _{BE(off)} =-0.5V			10	nS
t _r	Rise time				25	nS
t _s	Storage time	V _{CC} =30V, I _C =150mA, I _{B1} =- I _{B2} =5mA			225	nS
t _f	Fall time				60	nS

TR1 PNP Pin3、4、5 Characteristics (Typical)

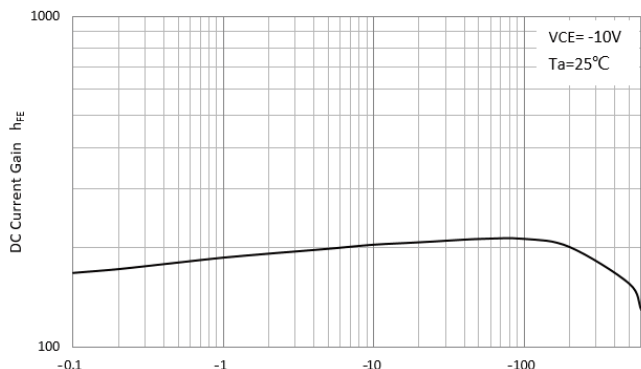
Static Characteristic



COLLECTOR-EMITTER VOLTAGE $V_{CE}(V)$

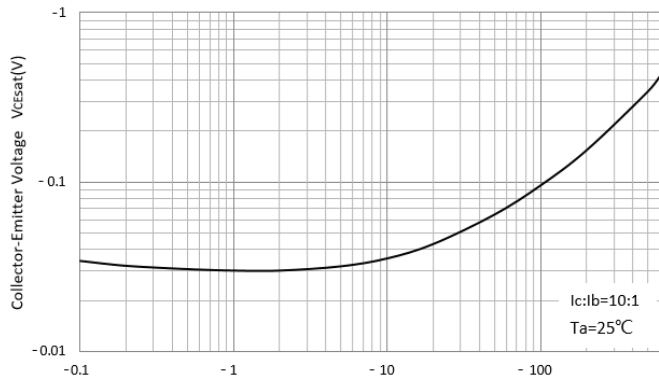
Collector-Emitter Saturation Voltage

DC Current Gain



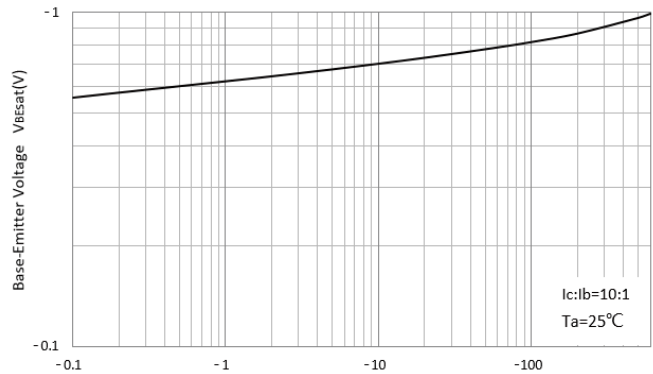
COLLECTOR CURRENT $I_C(mA)$

Base-Emitter Saturation Voltage



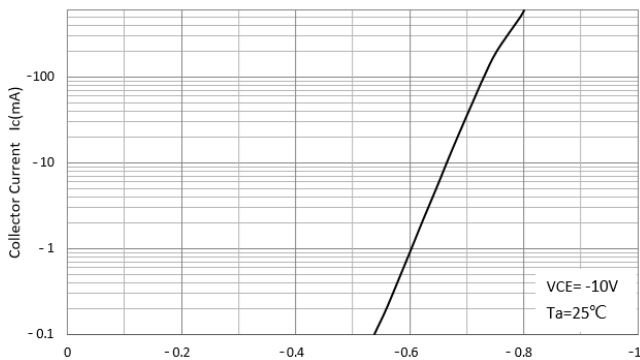
COLLECTOR CURRENT $I_C(mA)$

Base-Emitter On Voltage

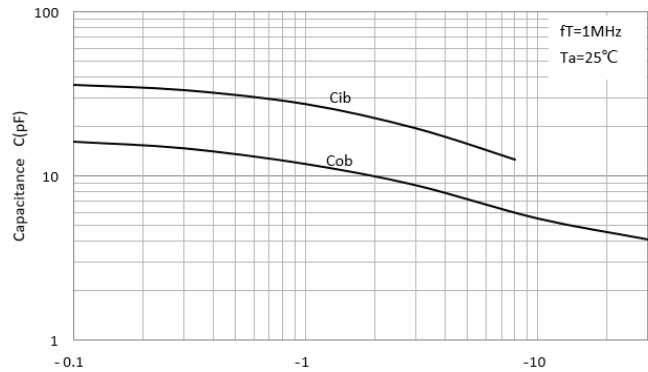


COLLECTOR CURRENT $I_C(mA)$

$C_{ob}/C_{ib}-V_{CB}/V_{EB}$



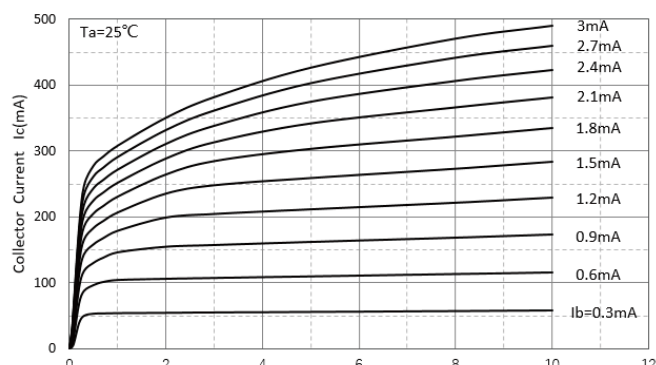
BASE-EMITTER VOLTAGE $V_{BE}(V)$



REVERSE VOLTAGE $V_R(V)$

TR2 NPN Pin1、2、6 Characteristics (Typical)

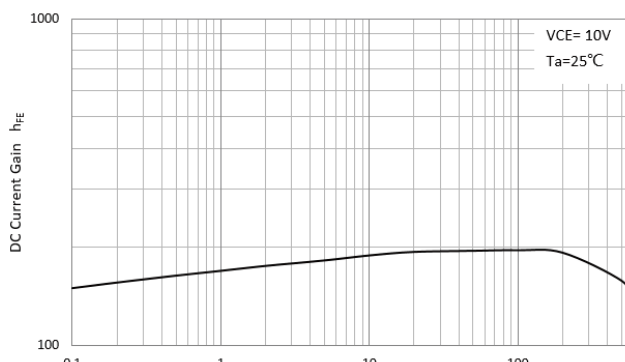
Static Characteristic



COLLECTOR-EMITTER VOLTAGE $V_{CE}(\text{V})$

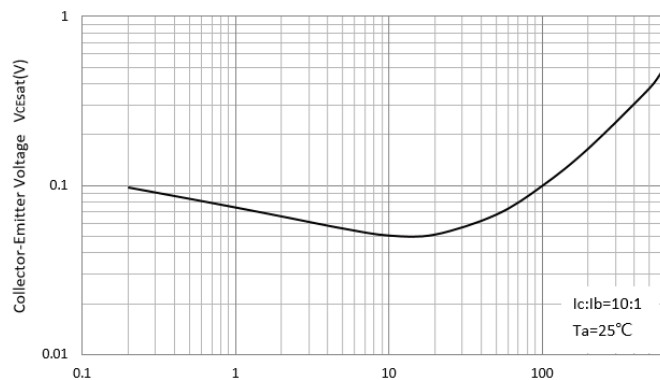
Collector-Emitter Saturation Voltage

DC Current Gain



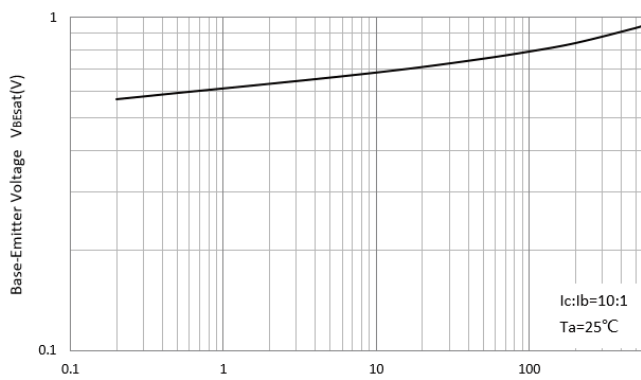
COLLECTOR CURRENT $I_c(\text{mA})$

Base-Emitter Saturation Voltage



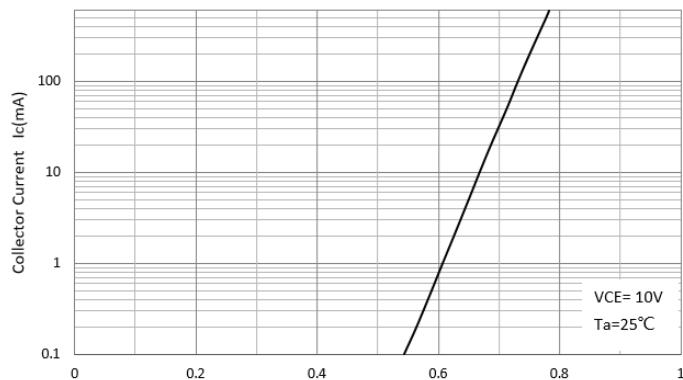
COLLECTOR CURRENT $I_c(\text{mA})$

Base-Emitter On Voltage

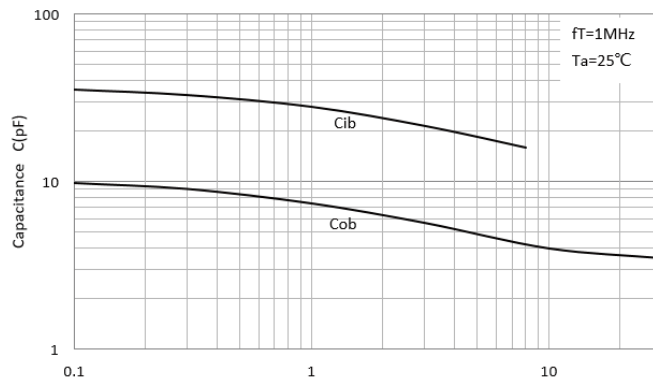


COLLECTOR CURRENT $I_c(\text{mA})$

$C_{ob}/C_{ib} - V_{CE}/V_{EB}$



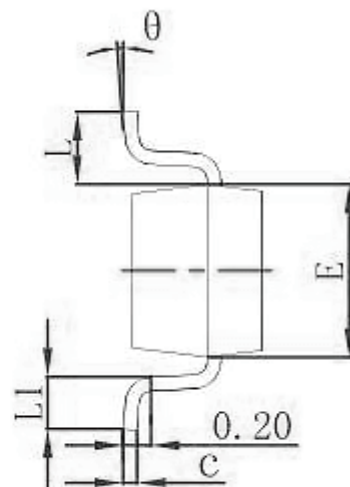
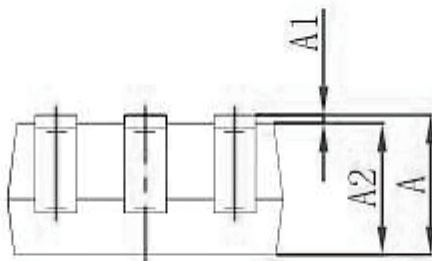
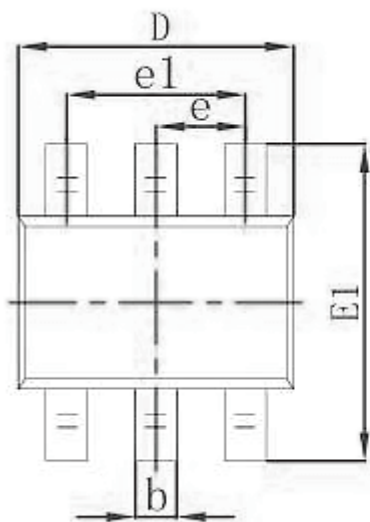
BASE-EMITTER VOLTAGE $V_{BE}(\text{V})$



REVERSE VOLTAGE $V_R(\text{V})$



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°