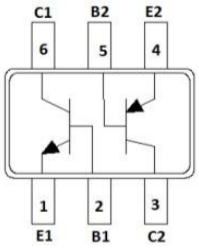
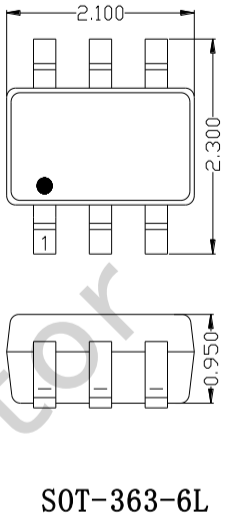
■Epoxy meets UL 94 V-0 flammability rating
■Lead Free Finish/RoHS Compliant
■For Switching and AF Amplifier Applications
■Rugged and reliable
■Device Marking Code

Equivalent Circuit





SOT-363-6L

MAXIMUM RATINGSTR1 (NPN) (Ta = 25 ℃)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	75	V
V_{CEO}	Collector-Emitter Voltage	40	V
V_{EBO}	Emitter-Base Voltage	6	V
P_C	Collector Power Dissipation	200	mW
I_C	Collector Current	600	mA
T_J	Junction Temperature	150	℃
$T_{STG,}$	Storage Temperature	-55 to 150	℃

ELECTRICAL CHARACTERISTICSOF TR1(NPN) (Ta = 25 ℃)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	Ic=10μA,I_E=0	75			V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	Ic=10mA,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}=60V,I_E=0			10	nA
I_{CEX}	Collector Cut-Off Current	V_{CE}=60V, $V_{EB(off)}$=3V			10	nA
I_{EBO}	Emitter-Base Cutoff Current	V_{EB} =3V, I_C=0			10	nA
h_{FE}	DC Current Gain(Note1)	V_{CE}=10V,I_C=0.1mA	35			
		V_{CE}=10V,I_C=1mA	50			
		V_{CE}=10V,I_C=10mA	75			
		V_{CE}=10V,I_C=150mA	100		300	
		V_{CE}=10V,I_C=500mA	40			
		V_{CE}=1V,I_C=150mA	35			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=150mA,I_B=15mA			0.3	V
		I_C=500mA,I_B=50mA			1	
$V_{BE(sat)}$	Base-Emitter Voltage	I_C=150mA,I_B=15mA	0.6		1.2	V
		I_C=500mA,I_B=50mA			2	

f_T	Transition Frequency	V_{CE}=20V, I_C=20mA, f=100MHz	300			MHz
C_{ob}	Output Capacitance	V_{CB}=10V, I_E=0, f=1MHz			8	pF
C_{ib}	Iutput Capacitance	V_{EB}=0.5V, I_C= 0,f=1MHz			25	pF
NF	Noise Figure	V_{CE}=10V, I_C=0.1mA, f=1KHz Rs=1KΩ,			4	dB
t_d	Delay Time	V_{CC}=30V, I_C=150mA , $V_{BE(off)}$=0.5V I_{B1}=15mA			10	nS
t_r	Rise Time				25	nS
t_S	Storage Time	V_{CC}=30V, I_C=150mA , $V_{BE(off)}$=0.5V I_{B1}=15mA			225	nS
t_f	Fall Time				60	nS

Note 1:Pluse Width ≤ 300μs, Duty Cycle ≤ 2.0%MAXIMUM

RATINGS TR2 (PNP)(Ta = 25 ℃)

Symbol	Parameter	Value	Units
V_{CBO}	Collector-Base Voltage	-60	V
V_{CEO}	Collector-Emitter Voltage	-60	V
V_{EBO}	Emitter-Base Voltage	-5	V
P_C	Collector Power Dissipation	200	mW
I_C	Collector Current	-600	mA
T_J	Junction Temperature	150	℃
$T_{STG,}$	Storage Temperature	-55 to 150	℃

ELECTRICAL CHARACTERISTICSOF TR2(PNP) (Ta = 25 ℃)

Symbol	Parameter	Test conditions	Min	Typ	Max	Unit
$V_{(BR)CBO}$	Collector-Base Breakdown Voltage	Ic=-10μA,I_E=0	-60			V
$V_{(BR)CEO}$	Collector-Emitter Breakdown Voltage	Ic=-10mA,I_B=0	-60			V
$V_{(BR)EBO}$	Emitter-Base Breakdown Voltage	I_E=-10μA,I_C=0	-5			V
I_{CBO}	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_{EBO}	Emitter-Base Cutoff Current	V_{EB} =-3V, I_C=0			-10	nA
h_{FE}	DC Current Gain (Note1)	V_{CE}=-10V,I_C=-0.1mA	75			
		V_{CE}=-10V,I_C=-1mA	100			
		V_{CE}=-10V,I_C=-10mA	100			
		V_{CE}=-10V,I_C=-150mA	100		300	
		V_{CE}=-10V,I_C=-500mA	50			
$V_{CE(sat)}$	Collector-Emitter Saturation Voltage	I_C=-150mA,I_B=-15mA			-0.4	V
		I_C=-500mA,I_B=-50mA			-1.6	V
$V_{BE(sat)}$	Base-Emitter Voltage	I_C=-150mA,I_B=-15mA			-1.3	V
		I_C=-500mA,I_B=-50mA			-2.6	V

f_T	Transition Frequency	V_{CE}=−20V, I_C=−50mA, f=100MHz	200			MHz
Cob	Output Capacitance	V_{CB}=−10V, I_E= 0,f=1MHz			8	pF
Cib	Input Capacitance	V_{EB}=−2V, I_C= 0,f=1MHz			30	pF
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				225	nS
t_f	Fall Time				60	nS

Note 1:Pluse Width ≤ 300μs, Duty Cycle ≤ 20%

ORDERING INFORMATION

Device	Package	Shipping	Tape wide	Emboss pitch	Tape specification	Notes
MMDT2227	SOT363-6L	Tape & Reel 3000pcs /7" Reel	8mm	4mm	Conductive	

TYPICAL Curve Characteristics (NPN Transistor)

Fig. 1 - Static Characteristics

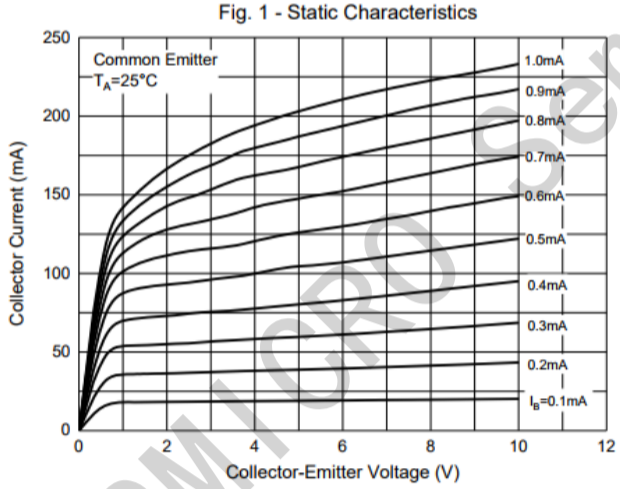


Fig. 2 - DC Current Gain Characteristics

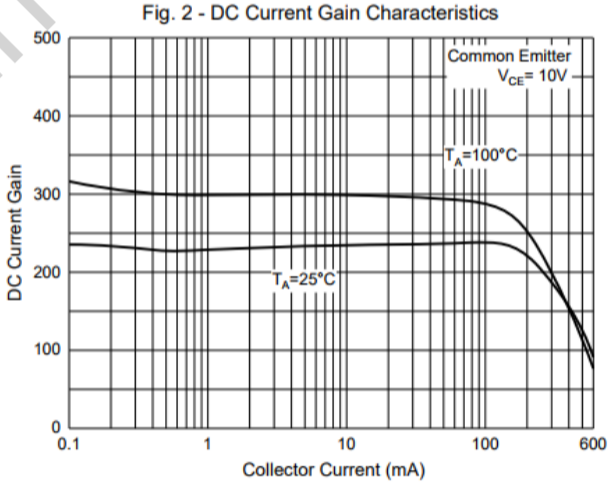


Fig. 3 - Collector-Emitter Saturation Voltage Characteristics

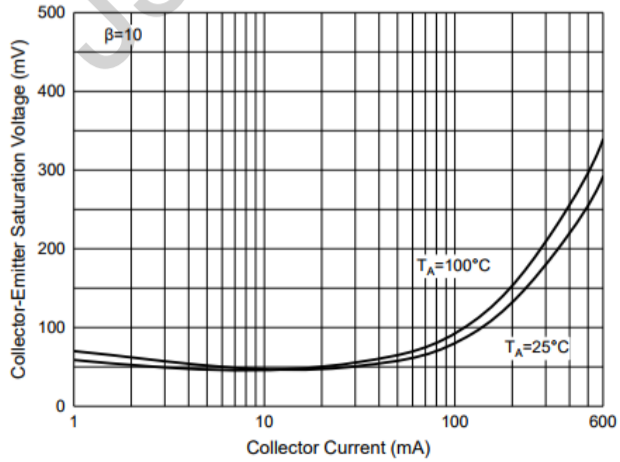


Fig. 4 - Base-Emitter Saturation Voltage Characteristics

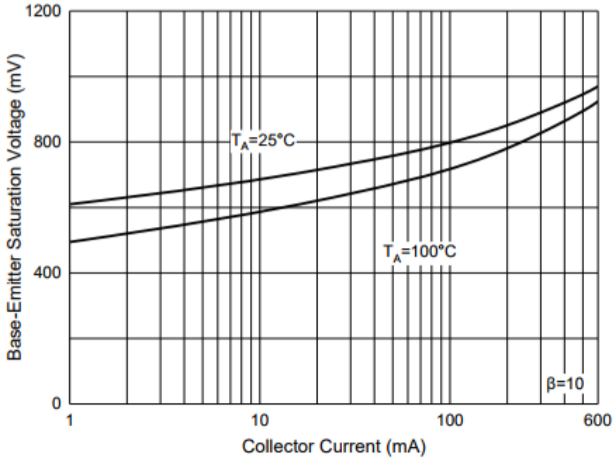


Fig. 5 - Base-Emitter Voltage Characteristics

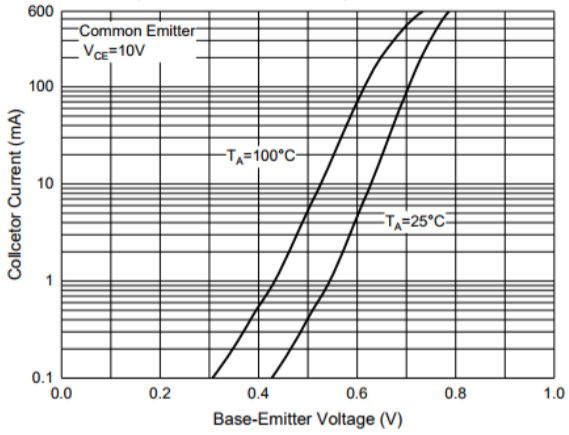
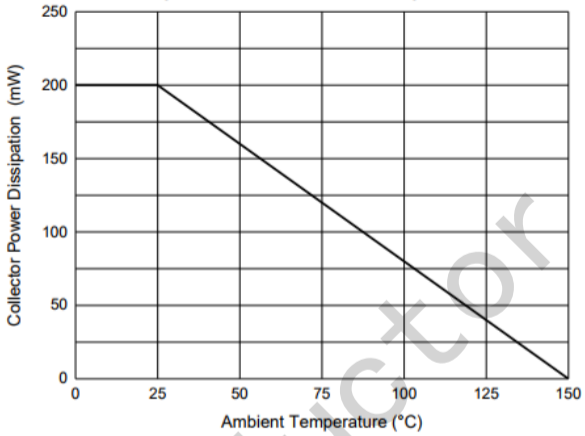


Fig. 6 - Collector Power Derating Curve



Curve Characteristics (PNP Transistor)

Fig. 7 - Static Characteristics

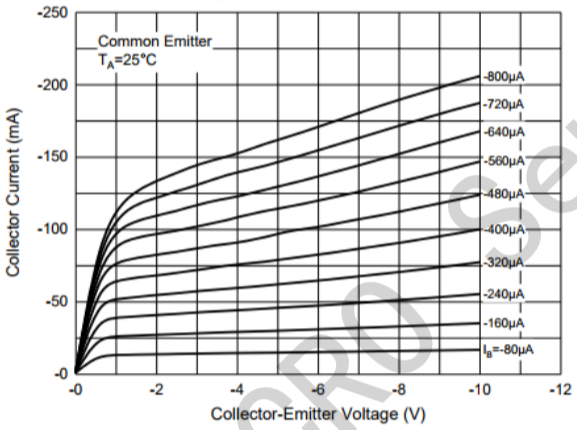


Fig. 8 - DC Current Gain Characteristics

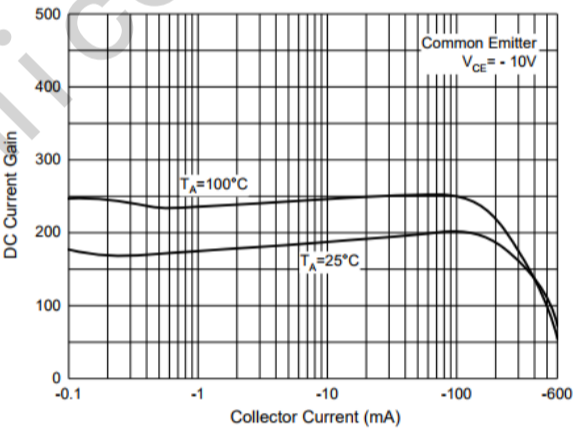


Fig. 9 - Collector-Emitter Saturation Voltage Characteristics

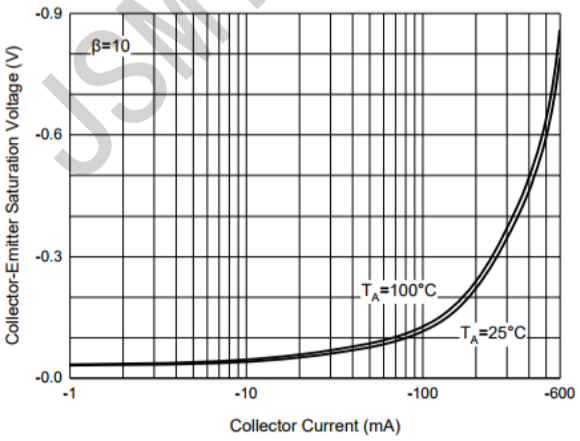


Fig. 10 - Base-Emitter Saturation Voltage Characteristics

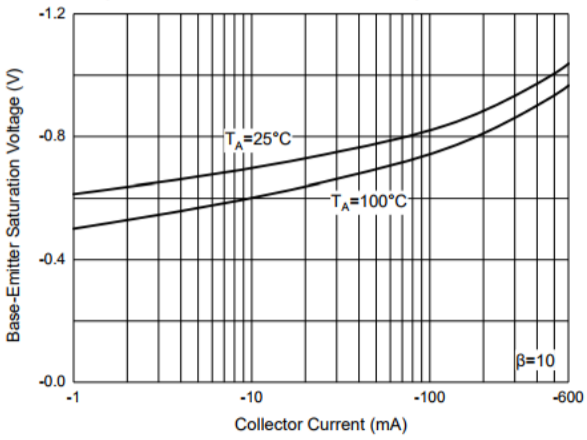


Fig. 11 - Base-Emitter Voltage Characteristics

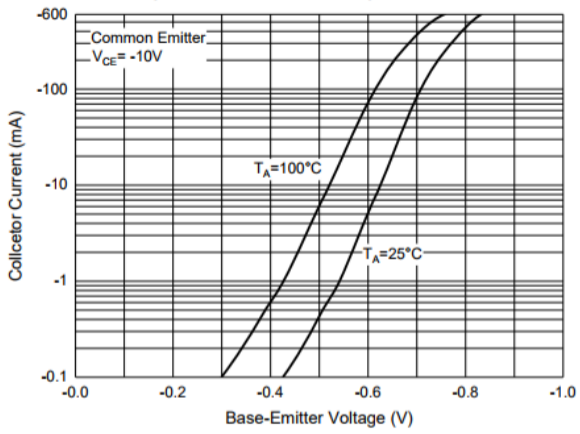
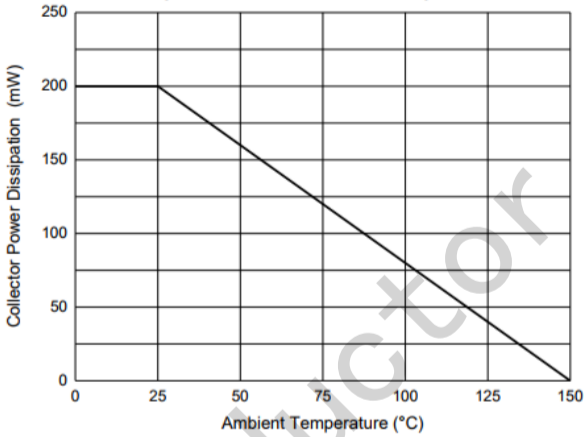


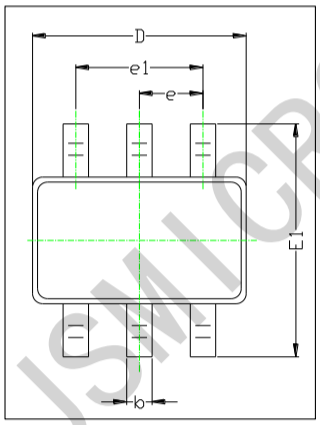
Fig. 12 - Collector Power Derating Curve



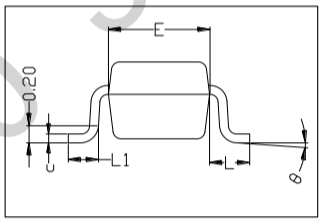
PACKAGE DIMENSIONS

Package outline : SOT-363-6L

TOP VIEW

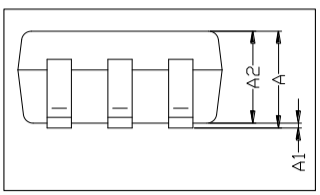


SIDE VIEW

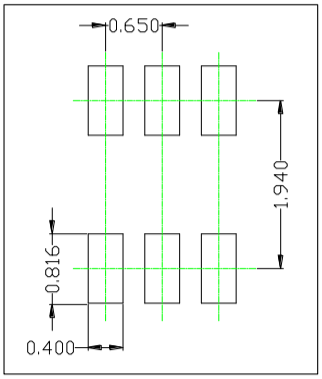


SYMBOL	DIMENSIONS IN MILLIMETER	
	MIN	MAX
A	0.900	1.000
A1	0.000	0.100
A2	0.900	1.000
b	0.150	0.350
c	0.100	0.150
D	2.000	2.200
E	1.150	1.350
E1	2.150	2.400
e	0.650 TYP.	
e1	1.200	1.400
L	0.525 REF.	
L1	0.260	0.460
θ	0°	8°

FRONT VIEW



SOLDRING PATTERN



Notice:

1.Lead plating: Pb free solder
2.Lead thickness includes solder plating
3.Lead frame: CAC-5
4.Other Tolerance: ±0.05
6. Dimensions are exclusive of Burrs,Mold Flash and Tie Bar extrusions
5.Unit: mm

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