

MMDT4401

Rev.B Oct.-2021

描述 / Descriptions

SOT-363 塑封封装双 NPN 半导体三极管。

Double silicon NPN transistor in a SOT-363 Plastic Package.

特征 / Features

低电压，低电流。无卤产品。

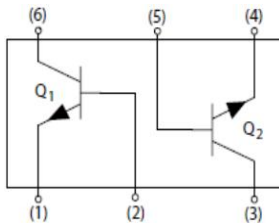
Low current, Low voltage. HF Product.

用途 / Applications

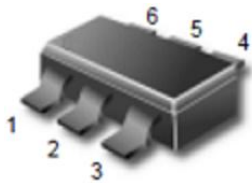
用于普通放大及开关。

General purpose amplifier and switching.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN 1、4 : Emitter

PIN 2、5 : Base

PIN 3、6 : Collector

放大及印章代码 / h_{FE} Classifications & Marking

See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25°C)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	60	V
Collector to Emitter Voltage	V_{CEO}	40	V
Emitter to Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA
Power Dissipation	P_D	200	mW
Junction Temperature	T_j	150	°C
Storage Temperature Range	T_{stg}	-55~150	°C

电性能参数 / Electrical Characteristics(Ta=25°C)

参数 Parameter	符号 Symbol	测试条件 Test Conditions	最小值 Min	典型值 Typ	最大值 Max	单位 Unit
Collector to Base Breakdown Voltage	V_{CBO}	$I_C=100\mu A$ $I_E=0$	60			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C=1.0mA$ $I_B=0$	40			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E=100\mu A$ $I_C=0$	6.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB}=50V$ $I_E=0$			0.1	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB}=5.0V$ $I_C=0$			0.1	μA
DC Current Gain	$h_{FE(1)}$	$V_{CE}=1.0V$ $I_C=0.1mA$	20			
	$h_{FE(2)}$	$V_{CE}=1.0V$ $I_C=1mA$	40			
	$h_{FE(3)}$	$V_{CE}=1.0V$ $I_C=10mA$	80			
	$h_{FE(4)}$	$V_{CE}=1.0V$ $I_C=150mA$	100		300	
	$h_{FE(5)}$	$V_{CE}=2.0V$ $I_C=500mA$	40			
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C=150mA$ $I_B=15mA$			0.4	V
	$V_{CE(sat)(2)}$	$I_C=500mA$ $I_B=50mA$			0.75	V
Base-Emitter Saturation Voltage	$V_{BE(sat)(1)}$	$I_C=150mA$ $I_B=15mA$			0.95	V
	$V_{BE(sat)(2)}$	$I_C=500mA$ $I_B=50mA$			1.2	V
Transition Frequency	f_T	$V_{CE}=10V$ $I_C=20mA$ $f=100MHz$	250			MHz
Output Capacitance	C_{ob}	$V_{CB}=5.0V$ $f=1.0MHz$			6.5	pF
Storage Time	t_s	$V_{CC}=30V$ $I_C=150mA$			225	ns
Fall Time	t_f	$I_{B1}=-I_{B2}=15mA$			30	ns
Delay Time	t_d	$V_{CC}=30V$ $V_{BE}=2V$			15	ns
Rise Time	t_r	$I_C=150mA$ $I_{B1}=15mA$			20	ns

电参数曲线图 / Electrical Characteristic Curve

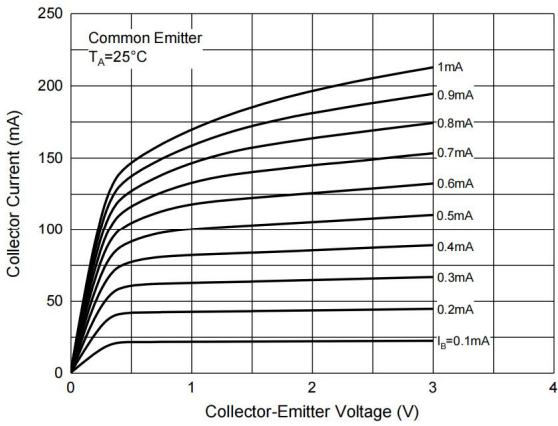


Fig. 1 - Static Characteristics

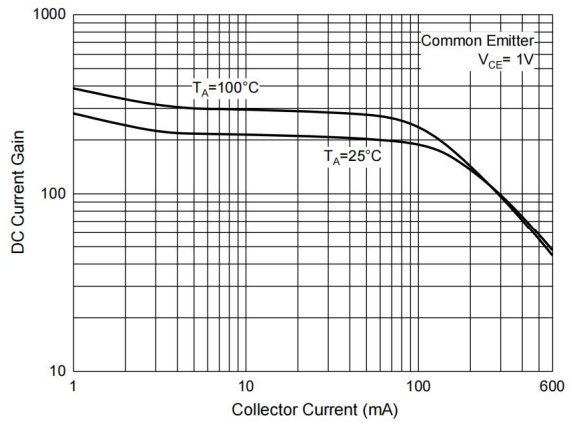


Fig. 2 - DC Current Gain Characteristics

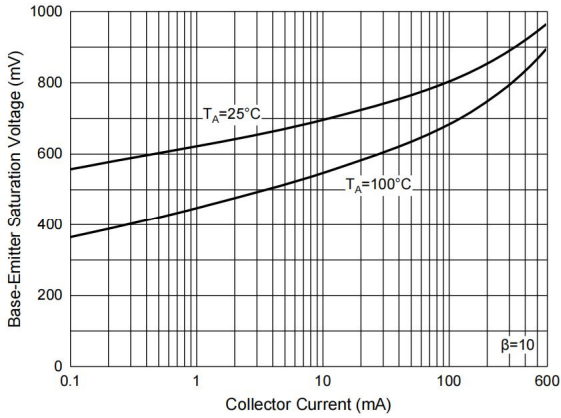


Fig. 3 - Base-Emitter Saturation Voltage Characteristics

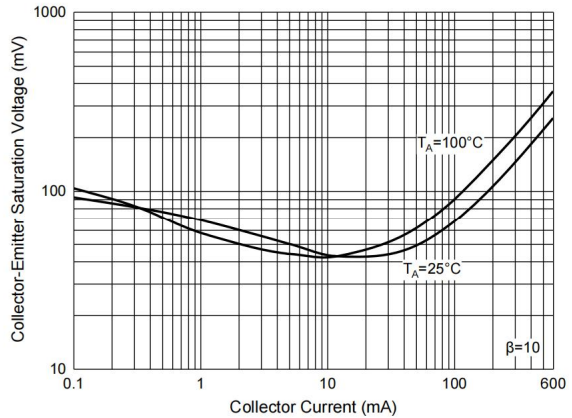


Fig. 4 - Collector-Emitter Saturation Voltage Characteristics

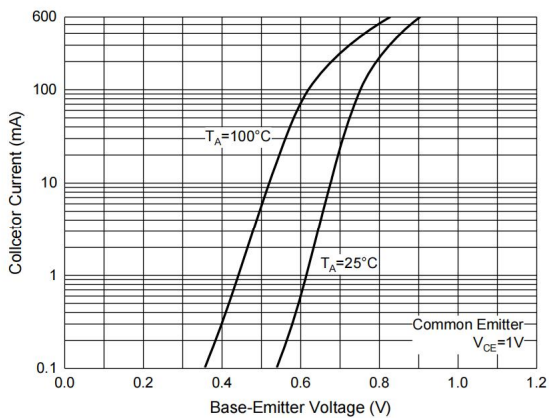


Fig. 5 - Base-Emitter Voltage Characteristics

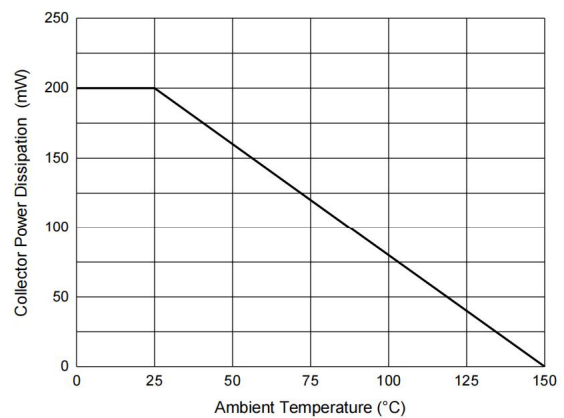
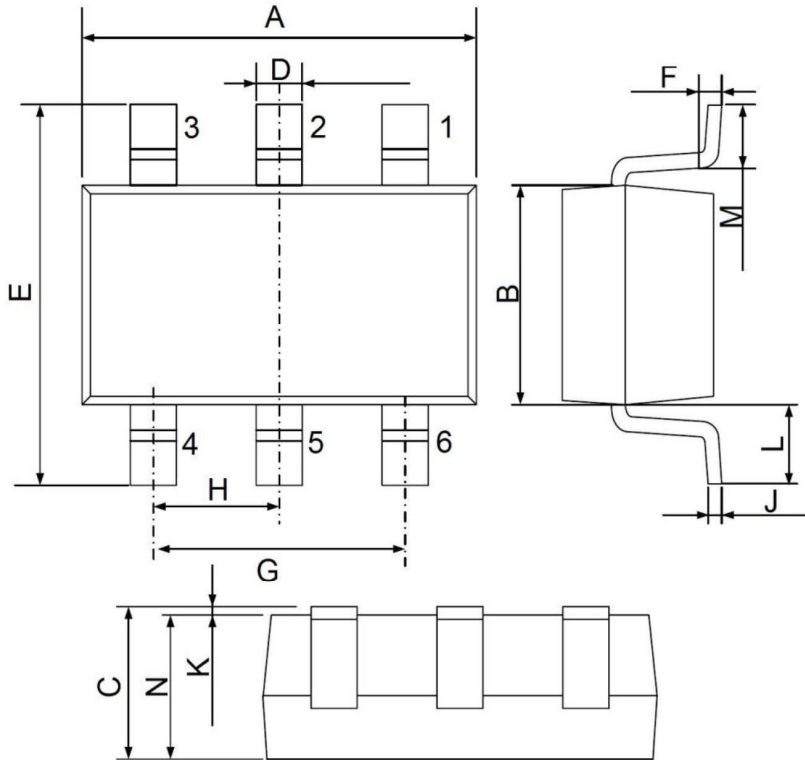


Fig. 6 - Collector Power Derating Curve

外形尺寸图 / Package Dimensions

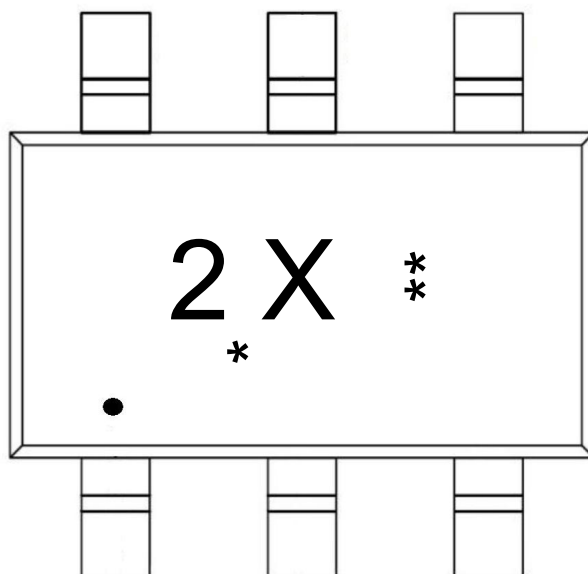
SOT-363-6L



UNIT: mm

DIM	MIN	MAX
A	2.00	2.20
B	1.15	1.35
C	0.90	1.10
D	0.15	0.35
E	1.95	2.25
F	0.20 Typ.	
G	1.20	1.40
H	0.65 Typ.	
J	0.08	0.15
K	0.00	0.10
L	0.525 Ref.	
M	0.26	0.46
N	0.90	1.10

印章说明 / Marking Instructions



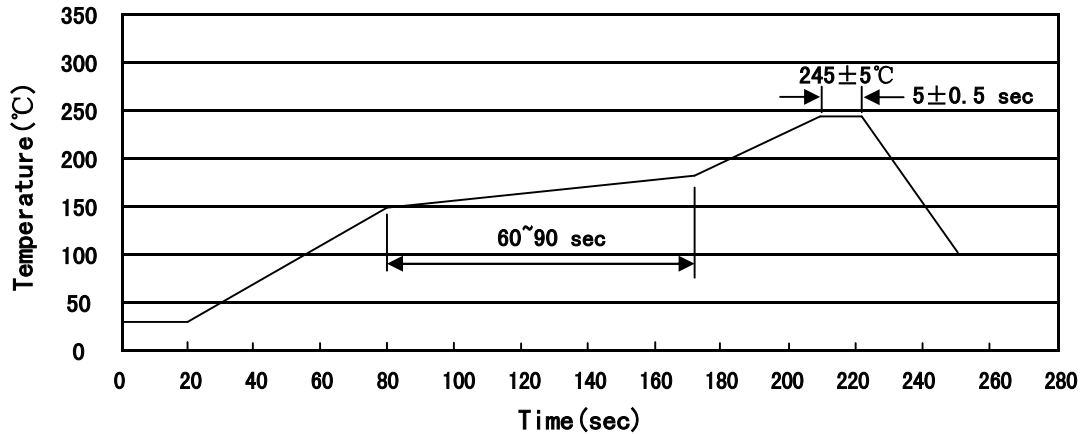
说明：

- ： 为“1”脚
- 2X： 为型号代码
- ***： 为生产批号代码，随生产批号变化

Note:

- ： “1” Pin
- 2X： Product Type Code
- ***： Lot No. Code, code change with Lot No.

回流焊温度曲线图(无铅) / Temperature Profile for IR Reflow Soldering(Pb-Free)



说明：

- 1、预热温度 150~180°C，时间 60~90sec;
- 2、峰值温度 245±5°C，时间持续为 5±0.5sec;
- 3、焊接制程冷却速度为 2~10°C/sec.

Note:

- 1.Preheating:150~180°C, Time:60~90sec.
- 2.Peak Temp.:245±5°C, Duration:5±0.5sec.
3. Cooling Speed: 2~10°C/sec.

耐焊接热试验条件 / Resistance to Soldering Heat Test Conditions

温度：260±5°C

时间：10±1 sec.

Temp.:260±5°C

Time:10±1 sec

包装规格 / Packaging SPEC.

卷盘包装 / REEL

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm ³)		
	Units/Reel 只/卷盘	Reels/Inner Box 卷盘/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Reel	Inner Box 盒	Outer Box 箱
SOT-363	3,000	10	30,000	6	180,000	7" ×8	180×120×180	390×385×205

使用说明 / Notices