

MMDT5451

Rev.C Aug.-2023

描述 / Descriptions

SOT-363 塑封封装 NPN+PNP 半导体三极管。

Silicon NPN and PNP transistor in a SOT-363 Plastic Package.

特征 / Features

高 h_{FE} , 低 $V_{CE(sat)}$, 无卤产品。

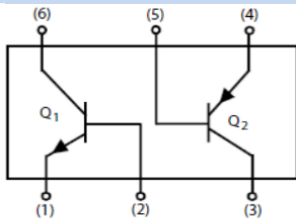
High DC Current Gain, Low Collector to Emitter Saturation Voltage, HF Product.

用途 / Applications

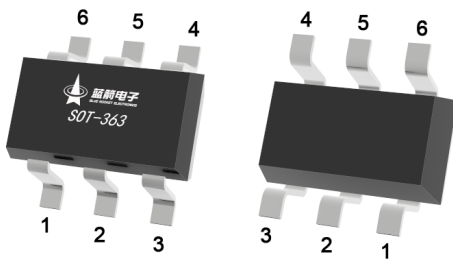
用于普通放大及开关。

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

见印章说明。 See Marking Instructions.

极限参数 / Absolute Maximum Ratings(Ta=25°C) (Q1:NPN)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V _{CBO}	180	V
Collector to Emitter Voltage	V _{CEO}	160	V
Emitter to Base Voltage	V _{EBO}	6.0	V
Collector Current	I _C	200	mA
Power Dissipation	P _D	200	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	625	°C/W
Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

极限参数 / Absolute Maximum Ratings(Ta=25°C) (Q2:PNP)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V _{CBO}	-180	V
Collector to Emitter Voltage	V _{CEO}	-160	V
Emitter to Base Voltage	V _{EBO}	-6.0	V
Collector Current	I _C	-200	mA
Power Dissipation	P _D	200	mW
Thermal Resistance, Junction to Ambient	R _{θJA}	625	°C/W
Junction and Storage Temperature	T _j , T _{stg}	-55~+150	°C

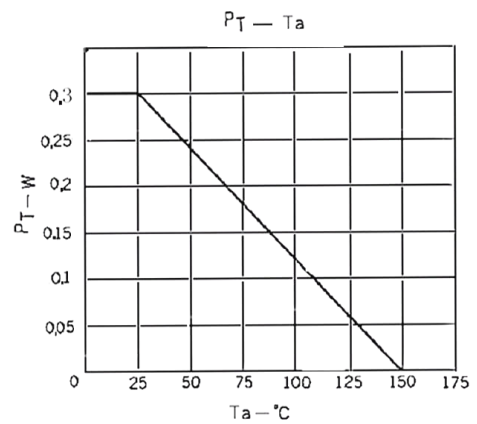
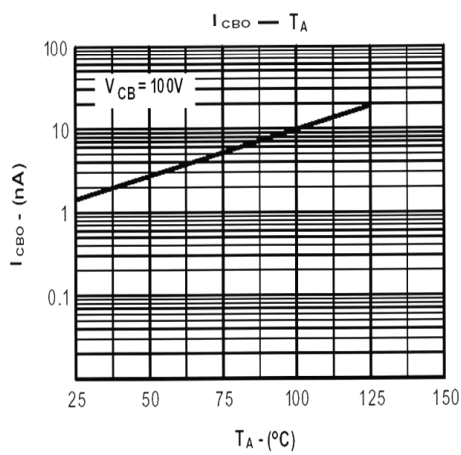
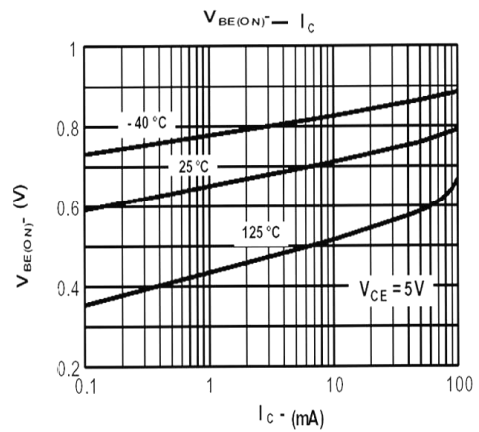
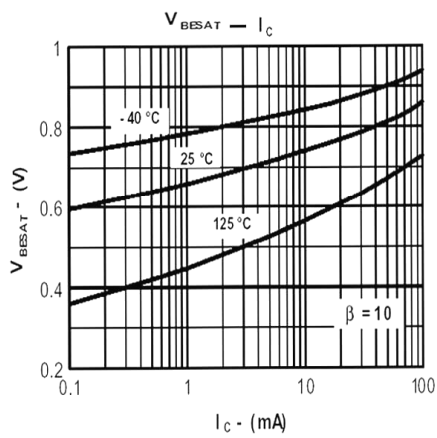
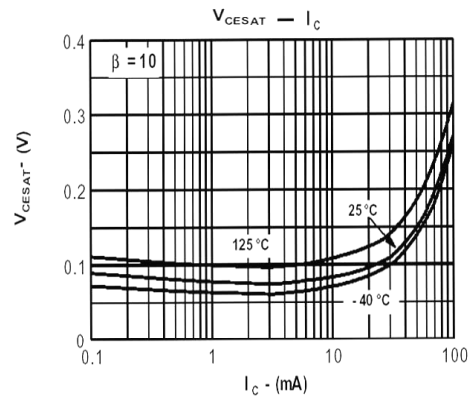
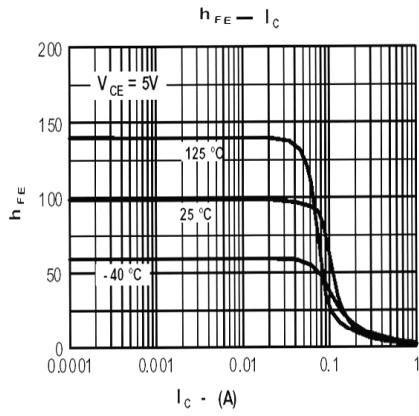
电性能参数 / Electrical Characteristics(Ta=25°C) (Q1:NPN)

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 Cut-Off Current	I _{CB0}	V _{CB} =180V I _E =0			0.1	μA
Emitter Cut-off Current	I _{EB0}	V _{EB} =6.0V I _C =0			0.1	μA
DC Current Gain	h _{FE(1)}	V _{CE} =5.0V I _C =10mA	100	200	300	
	h _{FE(2)}	V _{CE} =5.0V I _C =50mA	20	160		
	h _{FE(3)}	V _{CE} =5.0V I _C =1.0mA	40	190		
Collector-Emitter Saturation Voltage	V _{CE(sat) (1)}	I _C =10mA I _B =1.0mA		0.06	0.15	V
	V _{CE(sat) (2)}	I _C =50mA I _B =5.0mA		0.09	0.3	V
Base-Emitter Saturation Voltage	V _{BE(sat) (1)}	I _C =10mA I _B =1.0mA		0.7	1.0	V
	V _{BE(sat) (2)}	I _C =50mA I _B =5.0mA		0.8	1.0	V
Base-Emitter Voltage	V _{BE}	V _{CE} =5.0V I _C =10mA		0.68	0.75	V
Transition Frequency	f _T	V _{CE} =10V I _C =10mA	50	110		MHz
Collector Output Capacitance	C _{ob}	V _{CB} =10V I _E =0 f=1.0MHz		2.2	5.0	pF
Turn-on Time	t _{on}	I _C =100mA I _{B1} =-I _{B2} =10mA		0.3		μs
Turn-off Time	t _{off}			0.4		μs
Storage Time	t _{stg}			0.2		μs

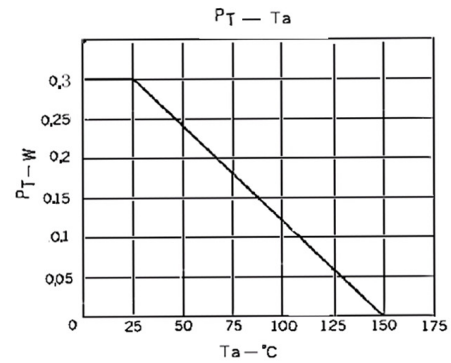
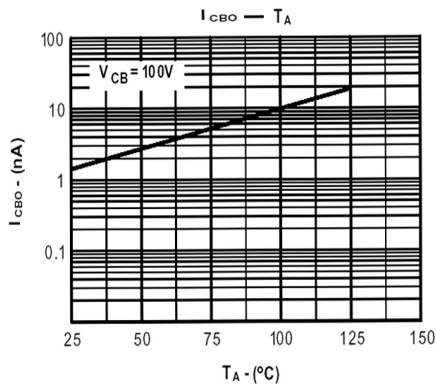
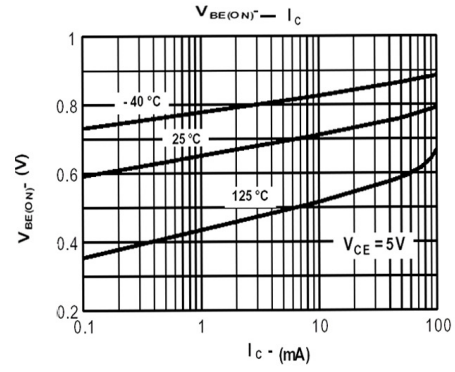
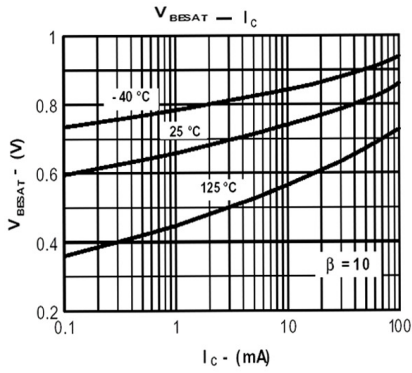
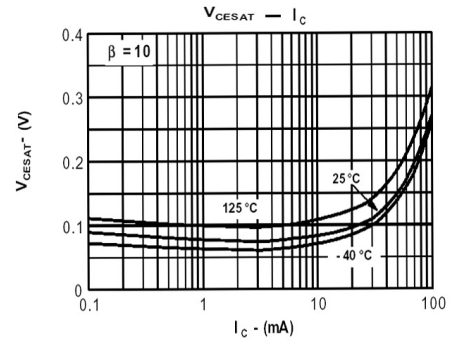
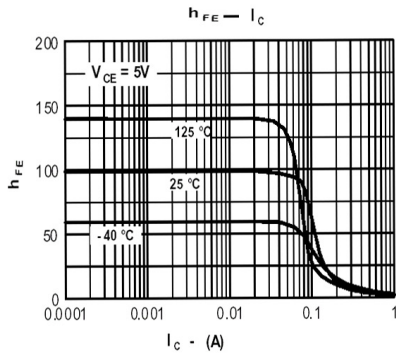
电性能参数 / Electrical Characteristics(Ta=25°C) (Q2:PNP)

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 Cut-Off Current	I _{CB0}	V _{CB} =-180V I _E =0			-0.1	μA
Emitter Cut-Off Current	I _{EB0}	V _{EB} =-6.0V I _C =0			-0.1	μA
DC Current Gain	h _{FE(1)}	V _{CE} =-5.0V I _C =-10mA	100	200	300	
	h _{FE(2)}	V _{CE} =-5.0V I _C =-50mA	20	70		
	h _{FE(3)}	V _{CE} =-5.0V I _C =-1.0mA	40	180		
Collector-Emitter Saturation Voltage	V _{CE(sat) (1)}	I _C =-10mA I _B =-1.0mA		-0.12	-0.4	V
	V _{CE(sat) (2)}	I _C =-50mA I _B =-5.0mA		-0.5	-0.8	V
Base-Emitter Saturation Voltage	V _{BE(sat) (1)}	I _C =-10mA I _B =-1.0mA		-0.75	-1.0	V
	V _{BE(sat) (2)}	I _C =-50mA I _B =-5.0mA		-0.8	-1.0	V
Base-Emitter Voltage	V _{BE}	V _{CE} =-5.0V I _C =-10mA		-0.7	-0.75	V
Transition Frequency	f _T	V _{CE} =-10V I _C =-10mA	50	80		MHz
Collector Output Capacitance	C _{ob}	V _{CB} =-10V I _E =0 f=10MHz		2.5	5.0	pF
Turn-on Time	t _{on}	I _C =-100mA -I _{B1} =I _{B2} =-10mA		0.1		μs
Storage Time	t _{off}			0.2		μs
Fall Time	t _{stg}			0.1		μs

电参数曲线图 / Electrical Characteristic Curve (Q1:NPN)

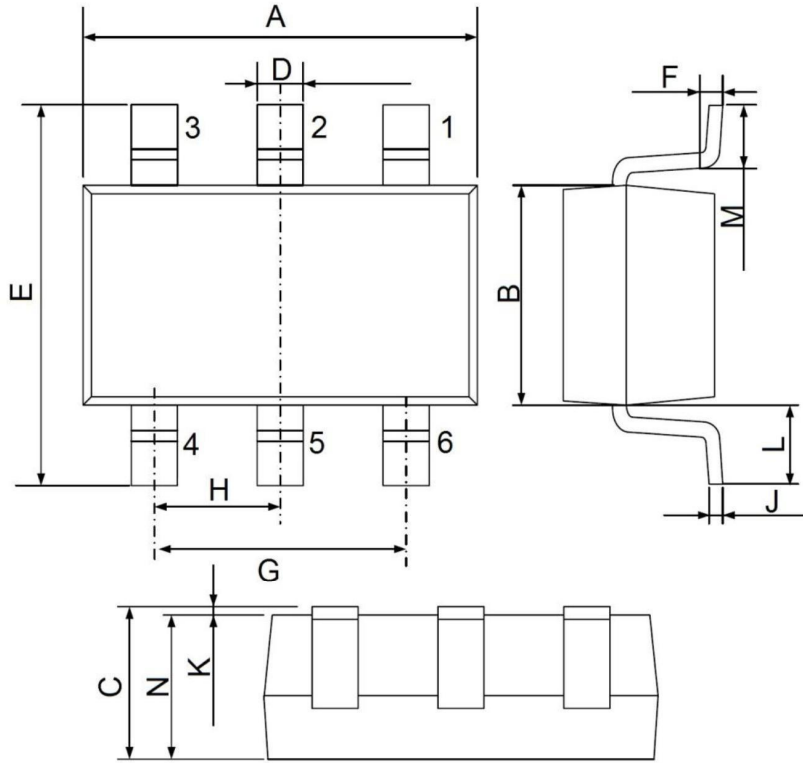


电参数曲线图 / Electrical Characteristic Curve (Q2:PNP)



外形尺寸图 / Package Dimensions

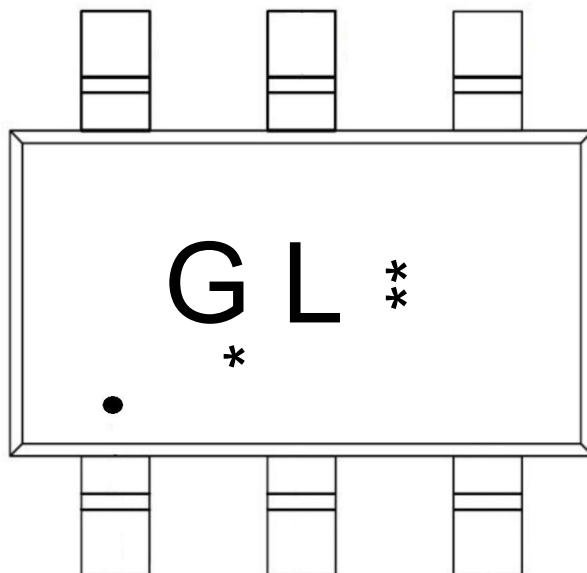
SOT-363-6L



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



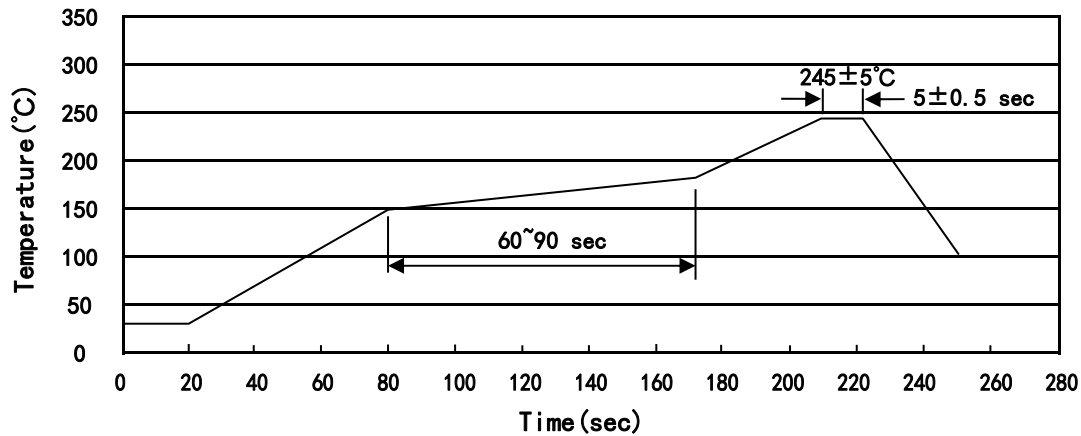
说明：

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

Note:

- ： "1" Pin
- GL： 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