

BRMMDT2227WS

Rev.D Oct.-2021

描述 / Descriptions

SOT-363 塑封封装双 NPN+PNP 半导体三极管。

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

特征 / Features

理想的低功率放大和开关。无卤产品。

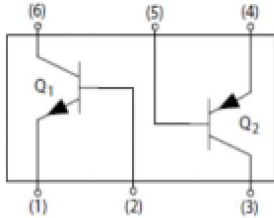
Ideal for Low Power Amplification and Switching.HF Product.

用途 / Applications

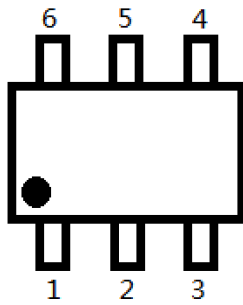
用于功率放大电路。

Power amplifier application.

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



Pin 1: E2

Pin 2: B2

Pin 3: C1

Pin 4: E1

Pin 5: B1

Pin 6: C2

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

See Marking Instructions.

极限参数 / Maximum Ratings, Total Device @ $T_A = 25^\circ\text{C}$ unless otherwise specified

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Total Power Dissipation	P_d	200	mW
Thermal Resistance, Junction to Ambient	$R_{\theta JA}$	625	$^\circ\text{C/W}$
Operating and Storage and Temperature Range	T_j, T_{STG}	-55~150	$^\circ\text{C}$

极限参数 / Absolute Maximum Ratings($T_a=25^\circ\text{C}$) (NPN , 2222A)

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Collector to Base Voltage	V_{CBO}	75	V
Collector to Emitter Voltage	V_{CEO}	40	V
Emitter to Base Voltage	V_{EBO}	6.0	V
Collector Current	I_C	600	mA

极限参数 / Absolute Maximum Ratings($T_a=25^\circ\text{C}$) (PNP , 2907A)

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}	-60	V
Emitter to Base Voltage	V_{EBO}	-5.0	V
Collector Current	I_C	-600	mA

电性能参数 / Electrical Characteristics(Ta=25°C) (NPN , 2222A)

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-Base Breakdown Voltage	V_{CBO}	$I_C = 10\mu A$ $I_E = 0$	75			V
Collector-Emitter Breakdown Voltage	V_{CEO}	$I_C = 10mA$ $I_B = 0$	40			V
Emitter-Base Breakdown Voltage	V_{EBO}	$I_E = 10\mu A$ $I_C = 0$	6.0			V
Collector Cut-Off Current	I_{CEX}	$V_{CE} = 60V$ $V_{EB(off)} = 3V$			10	nA
Collector Cut-Off Current	I_{CBO}	$V_{CB} = 60V$ $I_E = 0$			0.01	μA
		$V_{CB} = 60V$ $I_E = 0$ $T_A = 125^\circ C$			10	μA
Emitter Cut-Off Current	I_{EBO}	$V_{EB} = 3.0V$ $I_C = 0$			10	nA
Base Cut-Off Current	I_{BL}	$V_{CE} = 60V$ $V_{EB(off)} = 3V$			20	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = 10V$ $I_C = 0.1mA$	35			
	$h_{FE(2)}$	$V_{CE} = 10V$ $I_C = 1.0mA$	50			
	$h_{FE(3)}$	$V_{CE} = 10V$ $I_C = 10mA$	75			
	$h_{FE(4)}$	$V_{CE} = 10V$ $I_C = 10mA$ $T_A = -55^\circ C$	50			
	$h_{FE(5)}$	$V_{CE} = 10V$ $I_C = 150mA$	100		300	
	$h_{FE(6)}$	$V_{CE} = 1.0V$ $I_C = 150mA$	35			
	$h_{FE(7)}$	$V_{CE} = 10V$ $I_C = 500mA$	40			
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C = 150mA$ $I_B = 15mA$			0.3	V
	$V_{CE(sat)(2)}$	$I_C = 500mA$ $I_B = 50mA$			1.0	V
Base-Emitter Saturation Voltage	$V_{BE(sat)(1)}$	$I_C = 150mA$ $I_B = 15mA$	0.6		1.2	V
	$V_{BE(sat)(2)}$	$I_C = 500mA$ $I_B = 50mA$			2.0	V
Transition Frequency(Note 3)	f_T	$V_{CE} = 20V$ $I_C = 20mA$ $f = 100MHz$	300			MHz
Output Capacitance	C_{obo}	$V_{CB} = 10V$ $I_E = 0$ $f = 1.0MHz$			8.0	pF
Input Capacitance	C_{ibo}	$V_{EB} = 0.5V$ $I_C = 0$ $f = 1.0MHz$			25	
Noise Figure	NF	$I_C = 100\mu A$ $V_{CE} = 10V$ $R_S = 1.0k\Omega$ $f = 1.0kHz$			4.0	dB
Turn-on Time	t_d	$V_{CC} = 30V$ $I_C = 150mA$ $V_{BE(OFF)} = -0.5V$ $I_{B1} = 15mA$			10	ns
Storage Time	t_r				25	ns
	t_s		$V_{CC} = 30V$ $I_C = 150mA$			225
Fall Time	t_f	$I_{B1} = I_{B2} = 15mA$			60	ns

电性能参数 / Electrical Characteristics(Ta=25°C) (PNP , 2907A)

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}	$I_C = -10\mu A$ $I_E = 0$	-60			V
Collector to Emitter Breakdown Voltage	V_{CEO}	$I_C = -10mA$ $I_B = 0$	-60			V
Emitter to Base Breakdown Voltage	V_{EBO}	$I_E = -10\mu A$ $I_C = 0$	-5.0			V
Collector Cut-Off Current	I_{CBO}	$V_{CB} = -50V$ $I_E = 0$			-0.01	μA
	I_{CBO}	$V_{CB} = -50V$ $I_E = 0$ $T_A = 125^\circ C$			10	μA
Collector Cutoff Current	I_{CEX}	$V_{CE} = -30V$, $V_{EB(OFF)} = -0.5V$			-50	nA
Base Cutoff Current	I_{BL}	$V_{CE} = -30V$, $V_{EB(OFF)} = -0.5V$			-50	nA
DC Current Gain	$h_{FE(1)}$	$V_{CE} = -10V$ $I_C = -150mA^*$	100		300	
	$h_{FE(2)}$	$V_{CE} = -10V$ $I_C = -500mA^*$	50			
	$h_{FE(3)}$	$V_{CE} = -10V$ $I_C = -10mA$	100			
	$h_{FE(4)}$	$V_{CE} = -10V$ $I_C = -1.0mA$	100			
	$h_{FE(5)}$	$V_{CE} = -10V$ $I_C = -0.1mA$	75			
Collector-Emitter Saturation Voltage	$V_{CE(sat)(1)}$	$I_C = -150mA$ $I_B = -15mA$			-0.4	V
	$V_{CE(sat)(2)}$	$I_C = -500mA$ $I_B = -50mA$			-1.6	V
Base-Emitter Saturation Voltage	$V_{BE(sat)(1)}$	$I_C = -150mA$ $I_B = -15mA$			-1.3	V
	$V_{BE(sat)(2)}$	$I_C = -500mA$ $I_B = -50mA$			-2.6	V
Transition Frequency	f_T	$V_{CE} = -20V$ $I_C = -50mA$ $f = 100MHz$	200			MHz
Output Capacitance	C_{obo}	$V_{CB} = -10V$ $I_E = 0$ $f = 1.0MHz$			8.0	pF
Input Capacitance	C_{ibo}	$V_{EB} = -2V$ $I_C = 0$ $f = 1.0MHz$			30	
Turn-On Time	t_{on}				45	ns
Delay Time	t_d	$V_{CC} = -30V$ $I_C = -150mA$			10	
Rise Time	t_r	$I_{B1} = -15mA$			40	
Storage Time	t_s	$V_{CC} = -6V$ $I_C = -150mA$			80	
Fall Time	t_f	$I_{B1} = I_{B1} = -15mA$			30	
Turn-Off Time	t_{off}				100	

*Pulse Test: Pulse Width $\leq 300 \mu s$, Duty Cycle $\leq 2.0\%$

电参数曲线图 / Electrical Characteristic Curve

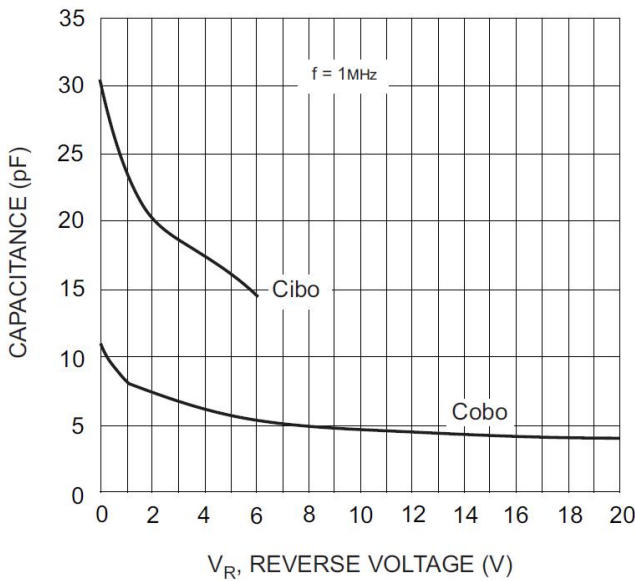


Fig. 1, Typical Capacitance Characteristics (2222A Type - NPN)

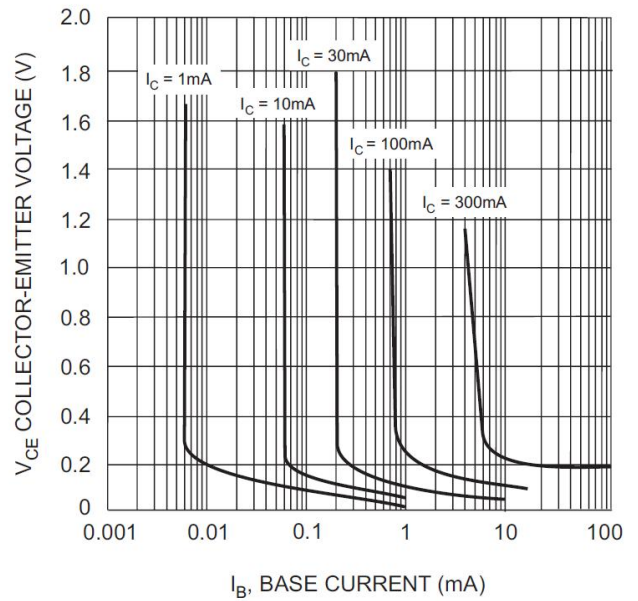


Fig. 2, Typical Collector Saturation Region (2222A Type - NPN)

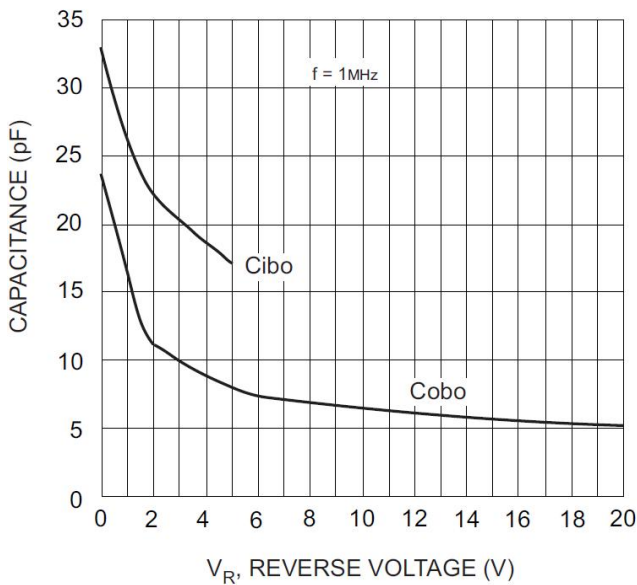


Fig. 3, Typical Capacitance Characteristics (2907A Type - PNP)

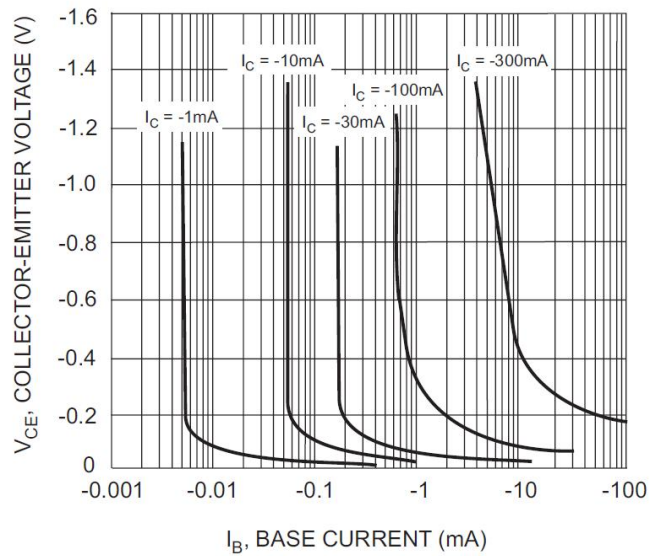
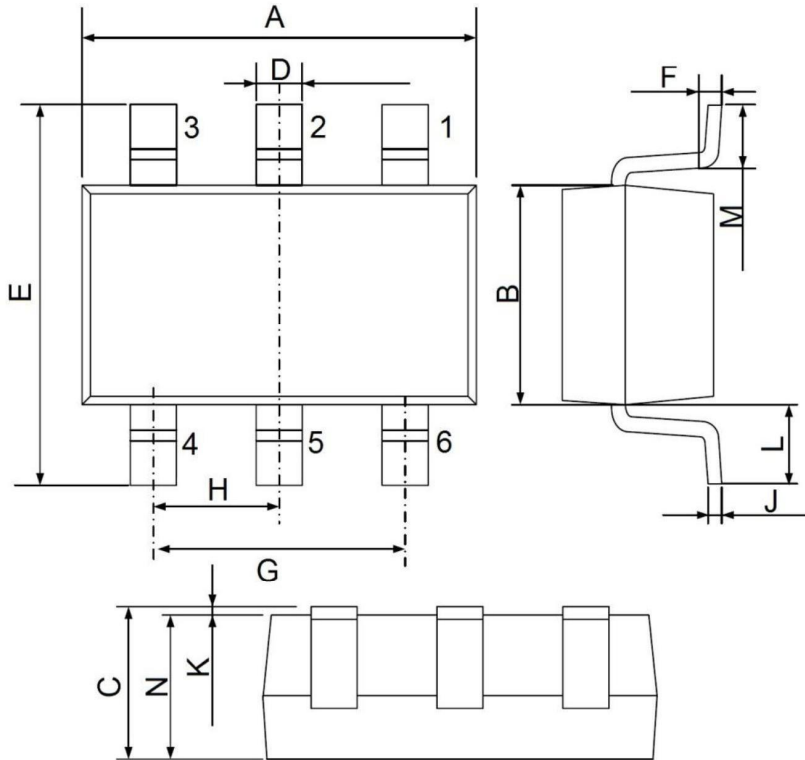


Fig. 4, Typical Collector Saturation Region (2907A Type - PNP)

外形尺寸图 / Package Dimensions

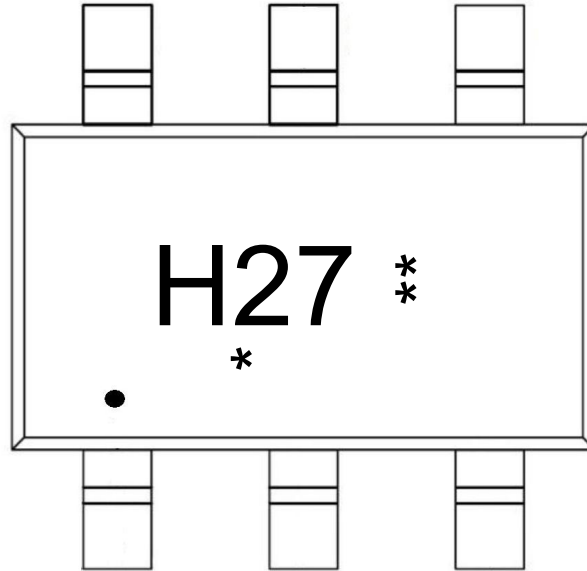
SOT-363-6L



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

H27：为型号代码

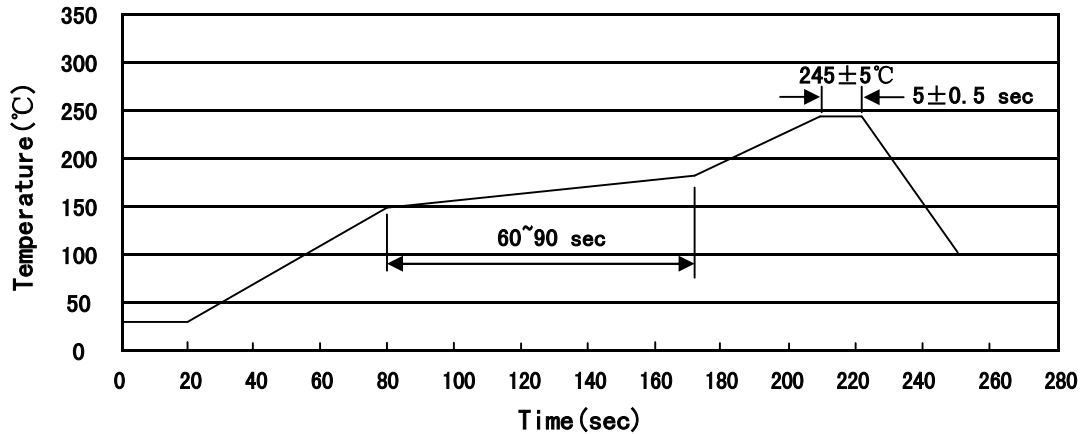
***：为生产批号代码，随生产批号变化

Note:

●：“1” Pin

H27：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	180000	7" ×8	180×120×180	390×385×205

使用说明 / Notices

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for [Bipolar Transistors - BJT category](#):

Click to view products by [Blue Rocket manufacturer](#):

Other Similar products are found below :

[BC559C](#) [MCH4017-TL-H](#) [MMBT-2369-TR](#) [BC546/116](#) [NJVMJD148T4G](#) [NTE16](#) [NTE195A](#) [IMX9T110](#) [2N4401-A](#) [2N6728](#) [2SA1419T-TD-H](#) [2SB1204S-TL-E](#) [2SC5488A-TL-H](#) [FMC5AT148](#) [2N2369ADCSM](#) [2N2907A](#) [2N3904-NS](#) [2N5769](#) [2SC4618TLN](#) [CPH6501-TL-E](#) [BC856BW-13-F](#) [US6T6TR](#) [BAX18/A52R](#) [BC556/112](#) [IMZ2AT108](#) [MMST8098T146](#) [MCH6102-TL-E](#) [BC846B-13-F](#) [2N3879](#) [30A02MH-TL-E](#) [NTE13](#) [NTE282](#) [NTE323](#) [NTE350](#) [NTE81](#) [JANTX2N2920L](#) [JANSR2N2907AUB](#) [CMLT3946EG TR](#) [SNSS40600CF8T1G](#) [CMLT3906EG TR](#) [GRP-DATA-JANS2N2907AUB](#) [GRP-DATA-JANS2N2222AUA](#) [MMDT3946FL3-7](#) [2N4240](#) [JANS2N3019](#) [MSB30KH-13](#) [2N2221AUB](#) [2SD1815T-TL-E](#) [2N6678](#) [2N2907Ae4](#)