

T0435N (U、Z、F)

主要参数 MAIN CHARACTERISTICS

$I_{T(RMS)}$	4A
V_{DRM}	800V
I_{GT}	35mA

用途

- 交流开关
- 相位控制

APPLICATIONS

- AC switching
- Phase control

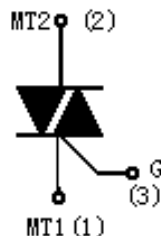
产品特性

- 玻璃钝化芯片，高可靠性和一致性
- 三象限可控硅，触发电流的一致性
- 环保 RoHS 产品

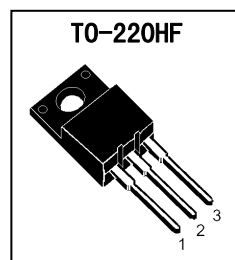
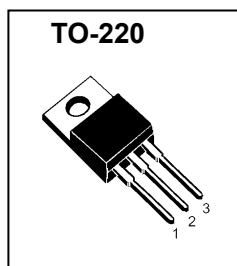
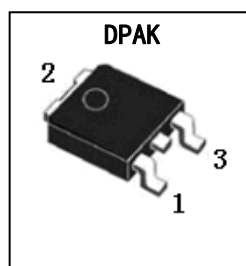
FEATURES

- Glass-passivated mesa chip for reliability and uniform
- Uniform gate trigger currents in three quadrants
- RoHS products

封装 Package



序号 Pin	引线名称 Description
1	主电极 1 MT1
2	主电极 2 MT2
3	门极 G



订货信息 ORDER MESSAGES

订货型号 Order code	印记 Marking	封装 Package	包装 Packaging	器件重量 Device Weight
T0435NU-O-U-B-A	T0435NU	DPAK	编带 Tape	0.36g (typ)
T0435NZ-O-Z-N-B	T0435NZ	TO-220	条管 Tube	2.03g (typ)
T0435NF-O-HF-N-B	T0435NF	TO-220HF	条管 Tube	2.00g (typ)

概述 GENERAL DESCRIPTION

T0435N (U、Z、F) 是玻璃钝化芯片结构的三象限双向晶闸管，产品在第四象限不可触发，具有较高的使用可靠性。可适用于容易出现较高 dV/dt 或 dI/dt 的交流全波控制线路中，特别推荐应用与电感性负载控制（如电机控制线路）。器件封装形式有 DPAK、TO-220、TO-220HF。

T0435N (U、Z、F) are Glass passivated three quadrant triacs, designed for high performance full-wave ac control applications where high static and dynamic dV/dt and high dI/dt can occur. They are specially recommended for use on inductive loads such as motor control circuits. Available packages are DPAK、TO-220、TO-220HF.

绝对最大额定值 ABSOLUTE RATINGS ($T_c=25^{\circ}\text{C}$)

项 目 Parameter	符 号 Symbol	试 验 条 件 Condition	数 值 Value	单 位 Unit
重复峰值断态电压 Repetitive peak off-state voltage	V_{DRM}		± 800	V
通态方均根电流 On-state RMS current	$I_{\text{T(RMS)}}$	full sine wave	4	A
非重复浪涌峰值通态电流 Non-repetitive surge peak on-state current	I_{TSM}	full sine wave , $t=20\text{ms}$	25	A
		full sine wave , $t=16.7\text{ms}$	27	A
	I^2t	$t=10\text{ms}$	3.1	A^2s
通态电流临界上升率 Repetitive rate of rise of on-state current after triggering	di/dt	$I_{\text{TM}}=6\text{A}$, $I_{\text{G}}=0.2\text{A}$, $di_{\text{G}}/dt=0.2\text{A}/\mu\text{s}$	100	$\text{A}/\mu\text{s}$
峰值门极电流 Peak gate current	I_{GM}		2	A
峰值门极电压 Peak gate voltage	V_{GM}		5	V
峰值门极功率 Peak gate power	P_{GM}		5	W
平均门极功率 Average gate power	$P_{\text{G(AV)}}$	over any 20ms period	0.5	W
存储温度 Storage temperature	T_{stg}		$-40\sim 150$	$^{\circ}\text{C}$
操作结温 Operation junction temperature	T_{VJ}		125	$^{\circ}\text{C}$

印记说明 (Marking)

 Trade Mark

GC E7AB—Serial number

Package code

T0435NU—Chip Code

Code number



电特性 ELECTRICAL CHARACTERISTIC ($T_c=25^\circ\text{C}$)

项 目 Parameter	符 号 Symbol	测 试 条 件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit
峰值重复断态电流 Peak Repetitive Blocking Current	I_{DRM}	$V_{\text{DM}}=800\text{V}$, $T_j=125^\circ\text{C}$, gate open	-	-	0.5	mA
峰值通态电压 Peak on-state voltage	V_{TM}	$I_{\text{TM}}=5\text{A}$	-	1.4	1.7	V
门极触发电流 Gate trigger current	I_{GT}	$V_{\text{DM}}=12\text{V}$, $R_L=100\ \Omega$, MT1(-),MT2(+),G(+)	2	-	35	mA
		MT1(-),MT2(+),G(-)	2	-	35	mA
		MT1(+),MT2(-),G(-)	2	-	35	mA
门极触发电压 Gate trigger voltage	V_{GT}	$V_{\text{DM}}=12\text{V}$, $R_L=100\ \Omega$, MT1(-),MT2(+),G(+)	-	0.7	1.5	V
		MT1(-),MT2(+),G(-)	-	0.7	1.5	V
		MT1(+),MT2(-),G(-)	-	0.7	1.5	V
维持电流 Holding current	I_{H}	$V_{\text{DM}}=12\text{V}$, $I_{\text{GT}}=0.1\text{A}$	-	-	30	mA
擎住电流 Latching current	I_{L}	$V_{\text{DM}}=12\text{V}$, $I_{\text{GT}}=0.1\text{A}$, MT1(-),MT2(+),G(+)	-	-	30	mA
		MT1(-),MT2(+),G(-)	-	-	45	mA
		MT1(+),MT2(-),G(-)	-	-	30	mA
断态临界电压上升率 Rise of off- state voltage	dV/dt	$V_{\text{DM}}=67\% V_{\text{DRM(MAX)}}$, $T_j=125^\circ\text{C}$, gate open	1000	-	-	V/ μs
门极开通时间 Gate controlled turn-on time	tgt	$I_{\text{TM}}=6\text{A}$, $V_{\text{DM}}=V_{\text{DRM(MAX)}}$, $I_{\text{G}}=0.1\text{A}$, $dI_{\text{G}}/dt=5\text{A}/\mu\text{S}$	-	2	-	Ms

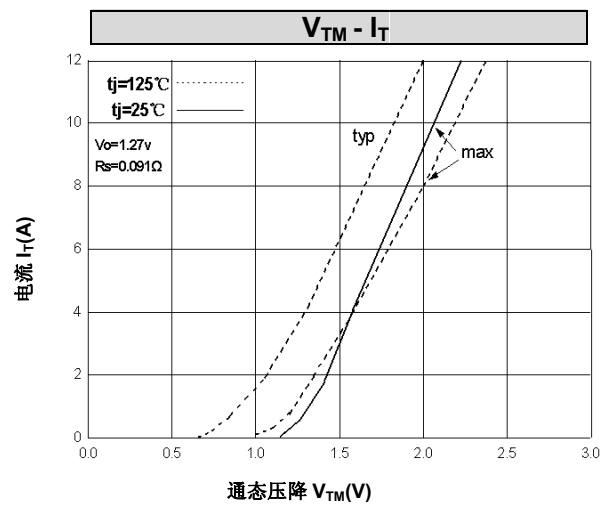
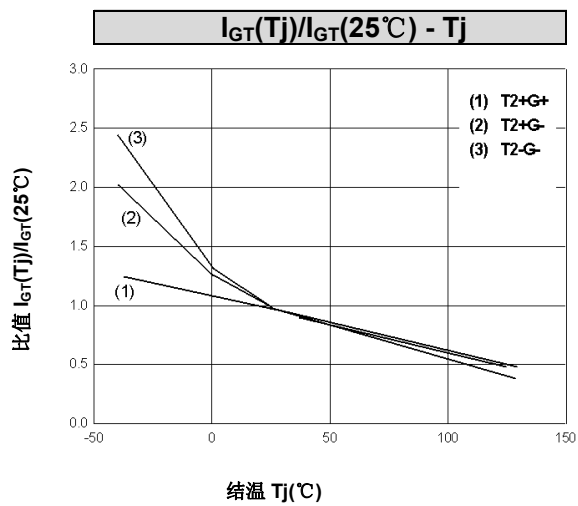
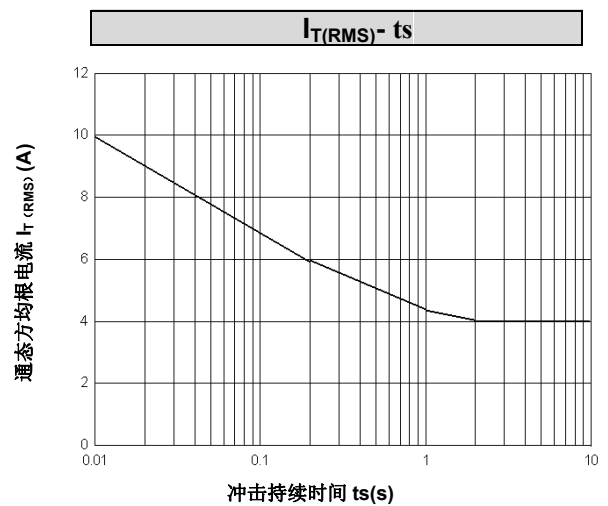
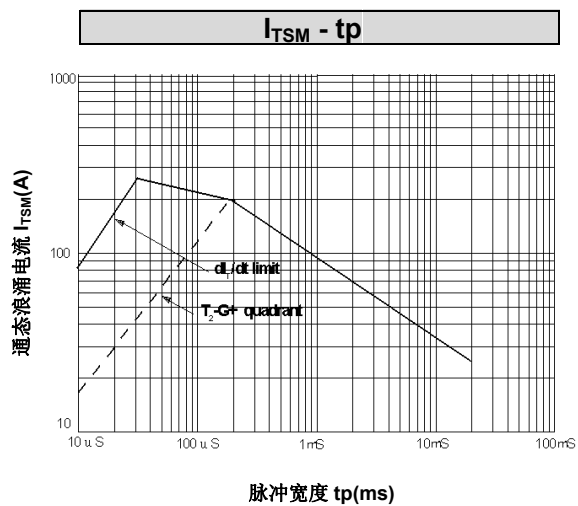
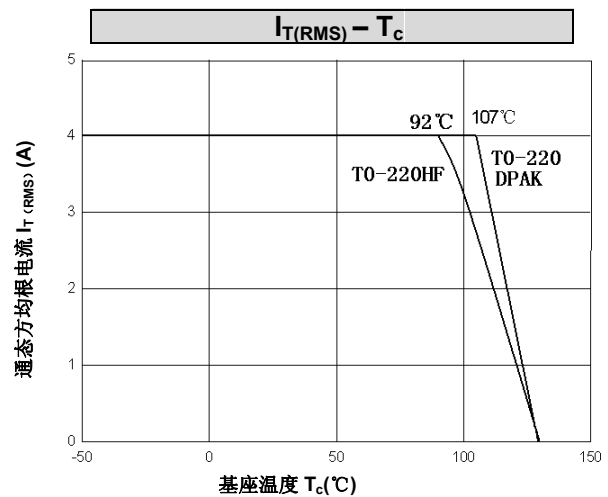
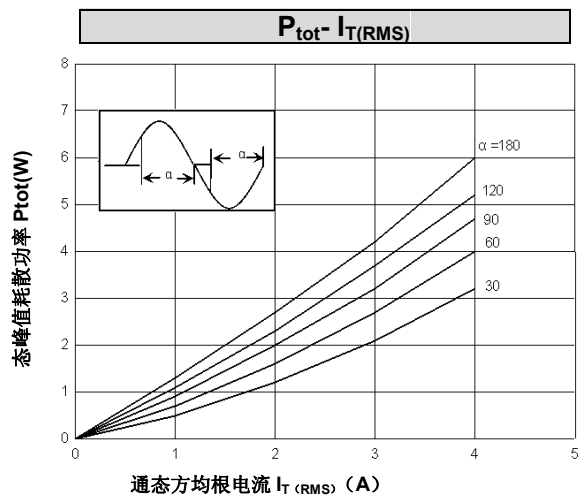
热特性 THERMAL CHARACTERISTIC

项 目 Parameter	符 号 Symbol	条 件 Condition	最小 Min	典型 Typ	最大 Max	单位 Unit
结到管壳的热阻 Thermal resistance junction to case	$R_{\text{th(j-c)}}$	full cycle(DPAK、TO-220)			3.0	$^\circ\text{C}/\text{W}$
结到管壳的热阻 Thermal resistance junction to case	$R_{\text{th(j-c)}}$	full cycle(TO-220HF)			5.5	$^\circ\text{C}/\text{W}$



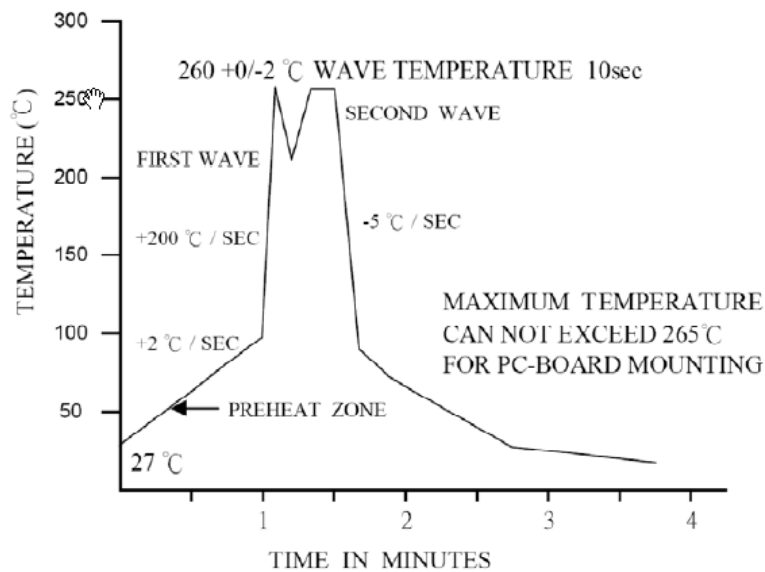


特征曲线 ELECTRICAL CHARACTERISTICS (curves)

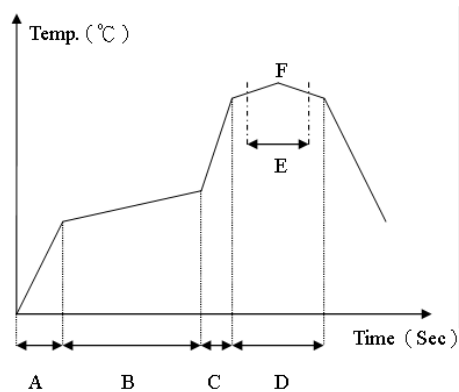




回流焊（或波峰焊）曲线 REFLOW & WAVE SOLDER THERMAL PROFILE



Reflow Heat-resisting Temperature Condition



Profile Condition			Unit
A	Ramp Up	1~3	°C/Sec
B	Heat Time	60~180	Sec
	Heat Temp.	150~200	°C
C	Ramp Up	1~3	°C/Sec
D	Temp. Over 217°C	60~150	Sec
E	Temp. Over 245°C	20~40	Sec
	Peak Temperature	260	°C
F	Peak Hold Time	10	Sec
	No of Time	2	Times

Dip Soldering

Flow soldering with bath. Flow soldering condition : 265 +5/-5 °C 10 ± 0.5 Sec.

Times: 3 times

Hand Soldering

With soldering iron: 380 °C 3 ± 0.5 Sec

Times: 2 times

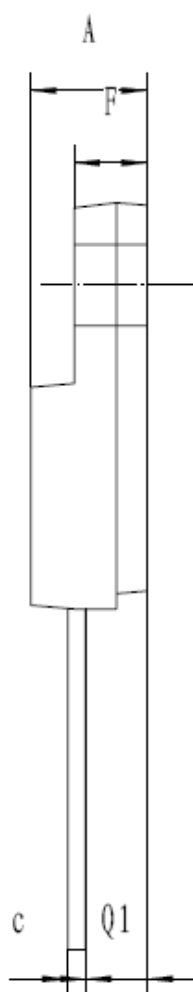
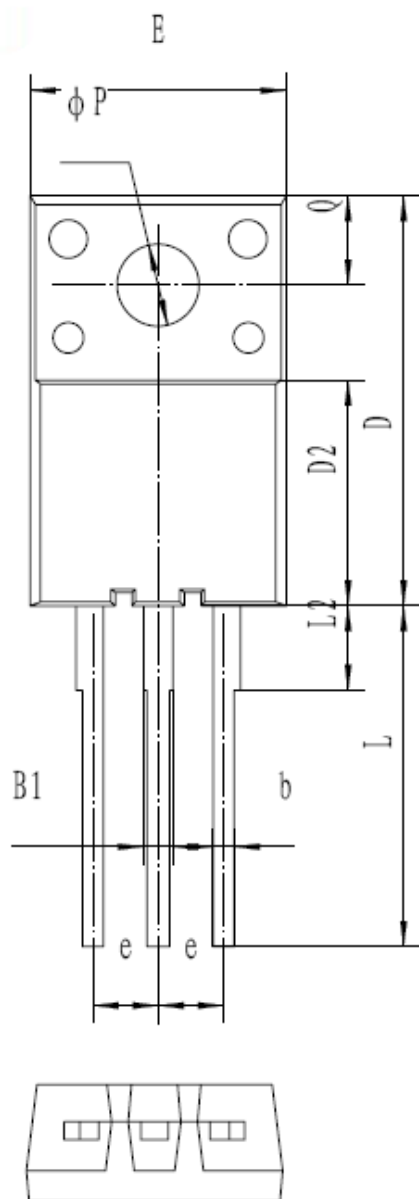




外形尺寸 PACKAGE MECHANICAL DATA

TO-220HF

单位 Unit : mm



符号 symbol	MIN	MAX
A	4.0	5.0
B1	0.87	1.27
b	0.72	0.92
c	0.5	0.7
D	15.0	16.5
D2	7.8	9.4
E	9.62	10.62
e	2.54 TYP	
F	2.3	3.3
L	13.0	14.0
L2	3.1	3.5
φP	3.0	3.4
Q	3.15	3.55
Q1	2.2	2.5



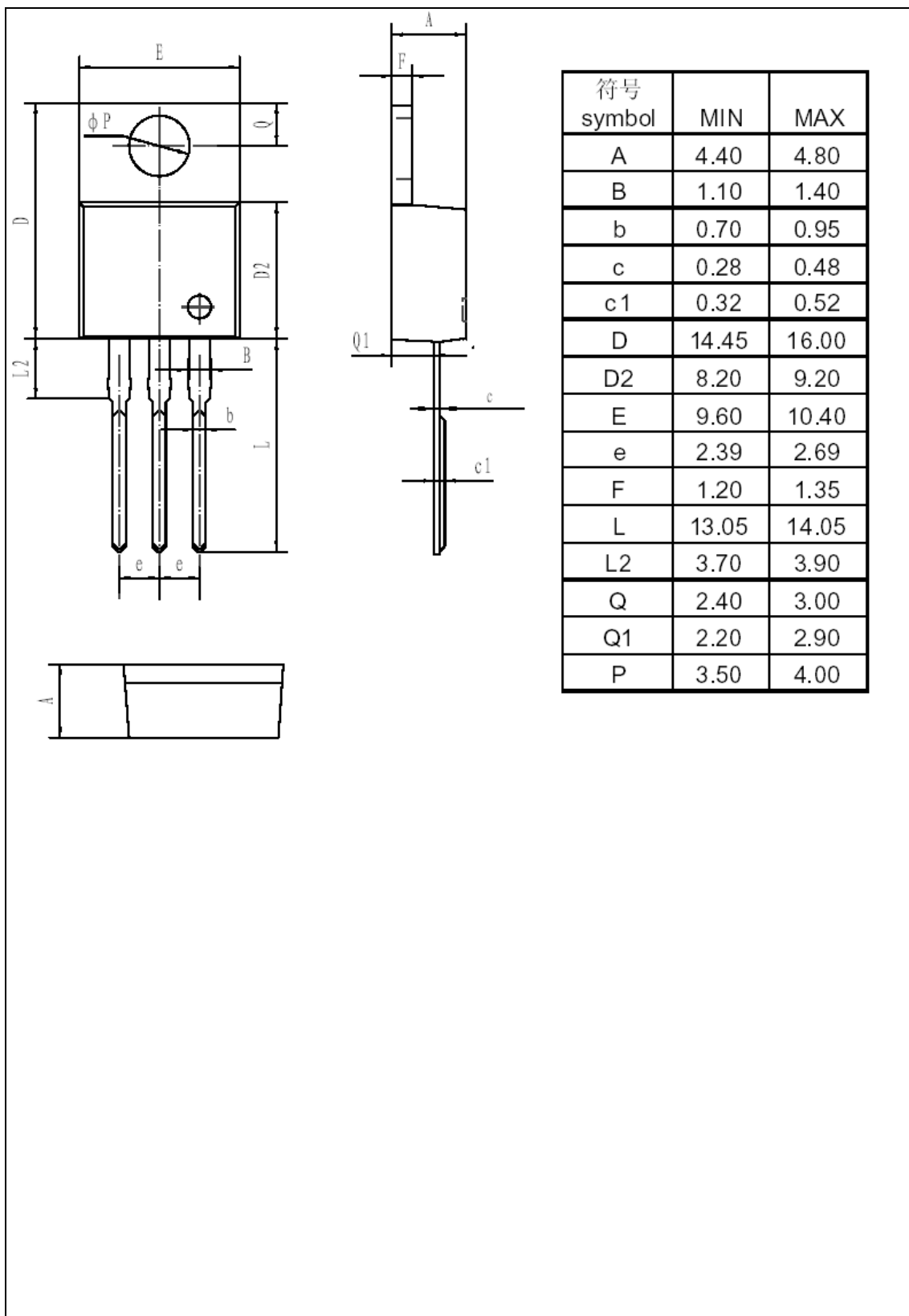


T0435N (U、Z、F)

外形尺寸 PACKAGE MECHANICAL DATA

TO-220

单位 Unit : mm

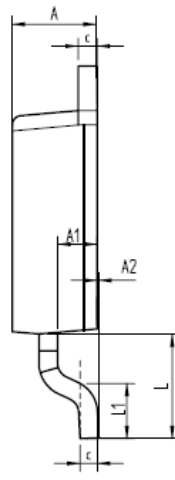
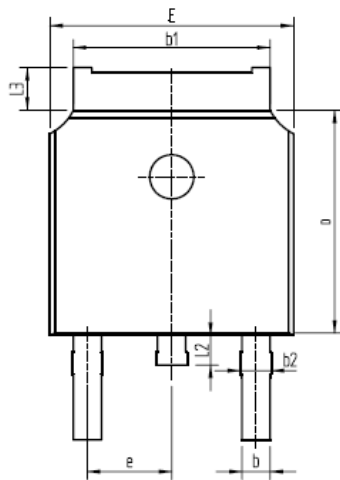




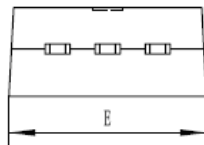
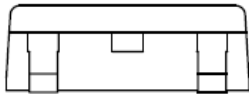
外形尺寸 PACKAGE MECHANICAL DATA

DPAK

单位 Unit : mm



SYMBOL	mm	
	MIN	MAX
A	2.16	2.41
A1	0.97	1.17
A2	0.00	0.15
b	0.63	0.93
b1	5.13	5.53
b2	0.66	0.96
c	0.40	0.60
D	5.80	6.40
E	6.30	6.90
e	2.286BSC	
L	2.50	3.30
L1	1.20	1.80
L2	0.60	1.00
L3	0.85	1.30



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3. 在电路设计时请不要超过器件的绝对最大额定值，否则会影响整机的可靠性。
4. 本说明书如有版本变更不另外告知

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3. Please do not exceed the absolute maximum ratings of the device when circuit designing.
4. Jilin Sino-microelectronics co., Ltd reserves the right to make changes in this specification sheet and is subject to change without prior notice.

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附录 (Appendix)：修订记录 (Revision History)

日期 Date	旧版本 Last Rev.	新版本 New Rev.	修订内容 Description of Changes
2015-10-22	201404A	201510B	修改外形图

