

## D92-02

Rev.A Apr.-2016

### 描述 / Descriptions

TO-3P 塑封封装超快恢复二极管。

Ultrafast Recovery Diode in a TO-3P Plastic Package.

### 特征 / Features

超快恢复, 超低  $Q_{RR}$ ,  $I_{rrm}$ 。

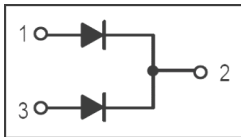
Ultrafast recovery, Very low  $L_{rrm}$ , Very low  $Q_{rr}$ .

### 用途 / Applications

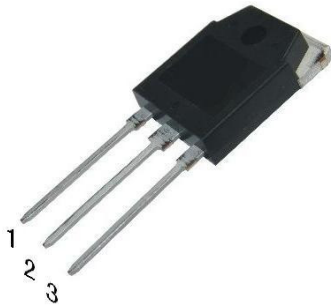
适用于开关电源、UPS 电源、DC/DC 变换器、续流二极管、变频器、电机驱动器。

Switching mode power supplies, UPS, DC/DC converters, Free wheeling diodes, Inverters, Motor drives.

### 内部等效电路 / Equivalent Circuit



### 引脚排列 / Pinning



PIN1 : Anode    PIN 2 : Cathode    PIN 3 : Anode

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

见印章说明。See Marking Instructions.

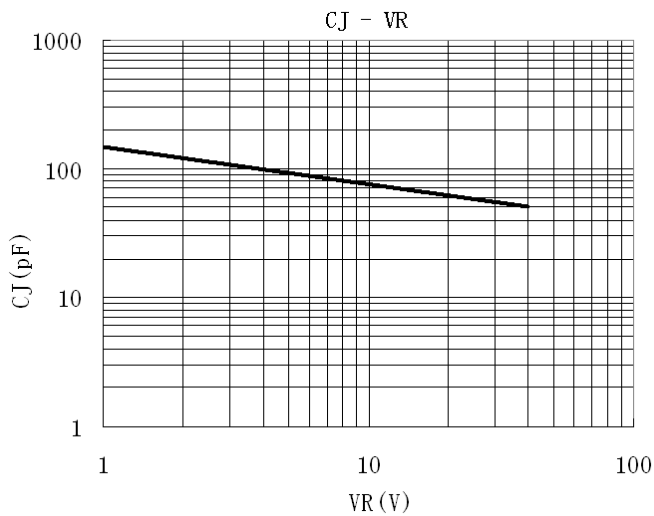
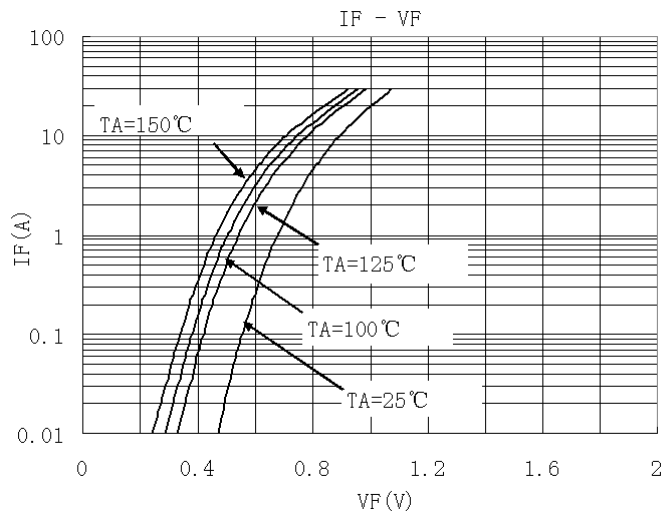
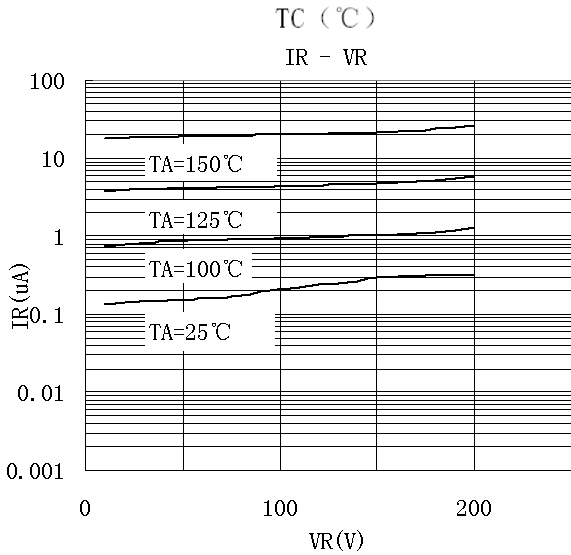
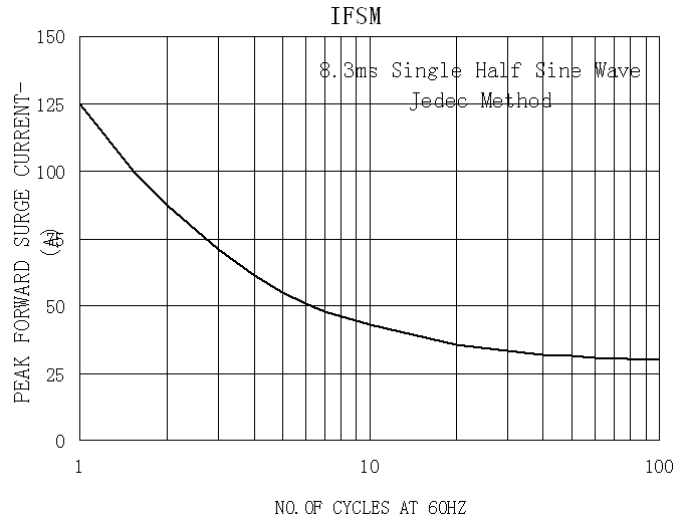
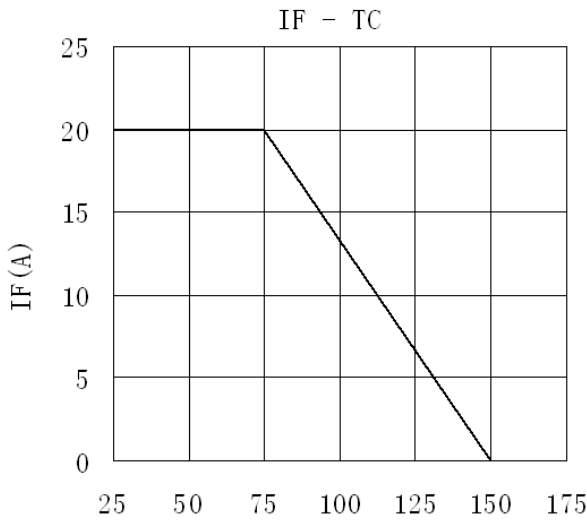
**极限参数 / Absolute Maximum Ratings(Ta=25°C)**

参数 Parameter	符号 Symbol	数值 Rating	单位 Unit
Cathode to anode voltage	$V_R$	200	V
Maximum continuous forward current	$I_F$	Ta=25°C	10
		50Hz square wave duty = 1/2, T <sub>C</sub> =115°C	20
Single pulse forward current (Peak forward current per leg)	$I_{FSM}$	100	A
Maximum repetitive forward current (per leg)	$I_{FRM}$	40	A
Operating junction and storage temperature range	T <sub>J</sub> T <sub>stg</sub>	-55~+150	°C
Junction to case, single leg conduction	$R_{\theta JC}$	1.5	K/W
Junction to case, both legs conducting		0.7	
Thermal resistance, junction to ambient	$R_{\theta JA}$	40	
Thermal resistance, case to heatsink	$R_{\theta CS}$	0.25	

**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
Cathode to anode breakdown voltage	$V_{BR}$	$I_R=100\mu A$	200			V
Maximum forward voltage	$V_{FM}$	$I_F=10A$		0.90	0.95	V
		$I_F=20A$		1.0		V
		$I_F=10A$ T <sub>J</sub> =125°C		0.80		V
Maximum reverse leakage current	$I_{RM}$	$V_R=V_R$ rated			15	μA
		$V_R=V_R$ rated T <sub>J</sub> =125°C			250	μA
Junction capacitance	$C_T$	$V_R=200V$		55		pF
Series inductance	$L_S$	Measured lead to lead 5 mm from package body		8		nH
Reverse recovery time	$t_{rr}$	$I_F=0.5A$ $I_R=1.0A$ $I_{RR}=250mA(RG\#1CKT)$		14	20	ns
		$I_F=1.0A$ $di_F/dt=50A/\mu s$ $V_R=30V$ T <sub>J</sub> =25°C			30	
	$t_{rr1}$	T <sub>J</sub> =25°C		21		
	$t_{rr2}$	T <sub>J</sub> =125°C		35		
Peak recovery current	$I_{RRM1}$	T <sub>J</sub> =25°C	$I_F=10A$ $di_F/dt=-200$ A/μs $V_R=160V$	1.9		A
	$I_{RRM2}$	T <sub>J</sub> =125°C		4.8		
Reverse recovery charge	$Q_{rr1}$	T <sub>J</sub> =25°C		25		nC
	$Q_{rr2}$	T <sub>J</sub> =125°C		78		

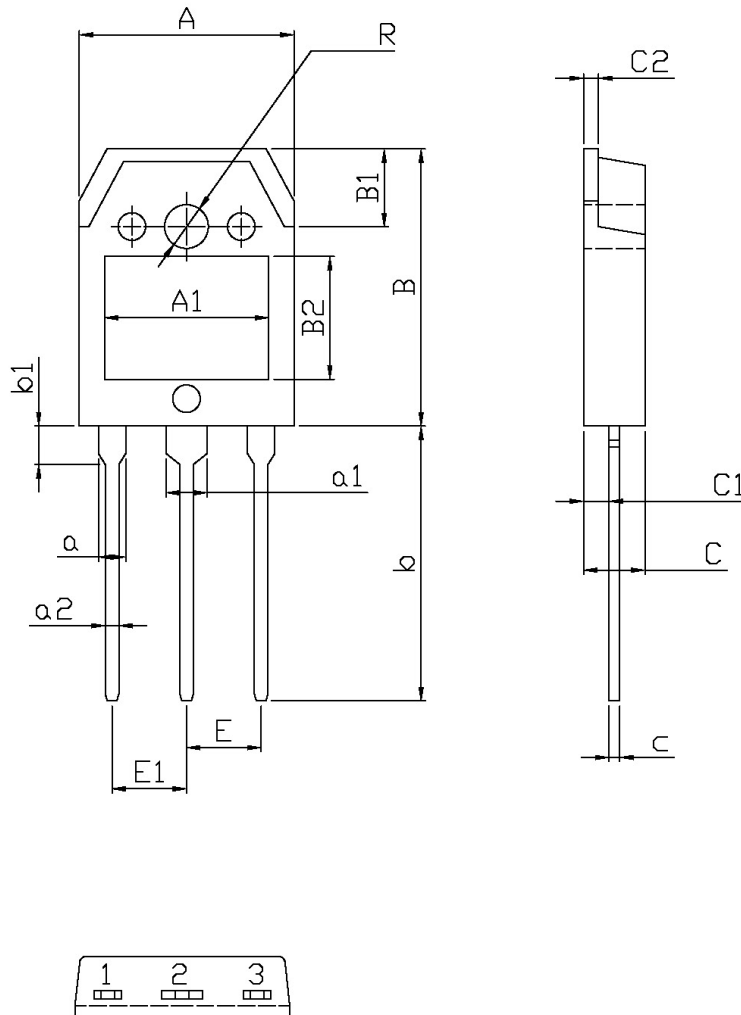
电参数曲线图 / Electrical Characteristic Curve



外形尺寸图 / Package Dimensions

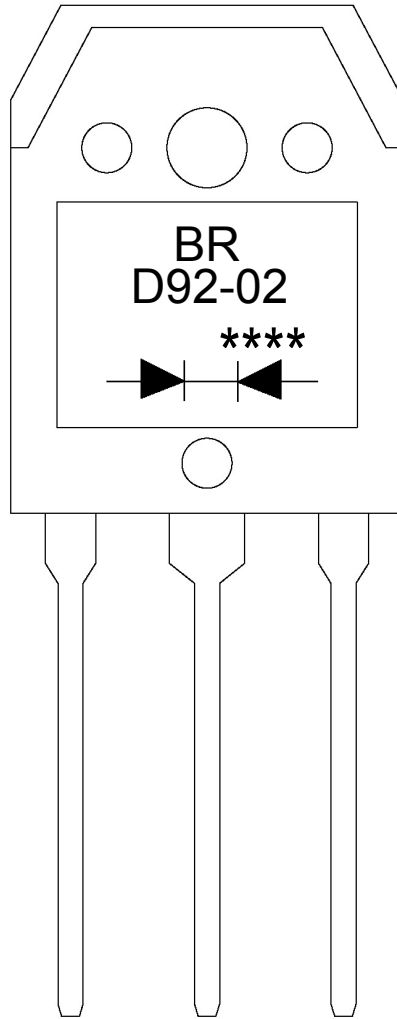
TO-3P

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	15.4	16.0	$a2$	0.8	1.2
R	3.1	3.5	E	5.45	
B	19.8	20.8	E1	5.45	
B1	5.5	5.9	C	4.3	4.7
B2	9.0		C1	1.2	1.6
A1	12.0		C2	1.4	1.6
b	19.6	20.6	c	0.5	0.7
b1	3.0	3.4			
a	1.8	2.2			
$a1$	2.8	3.2			

印章说明 / Marking Instructions



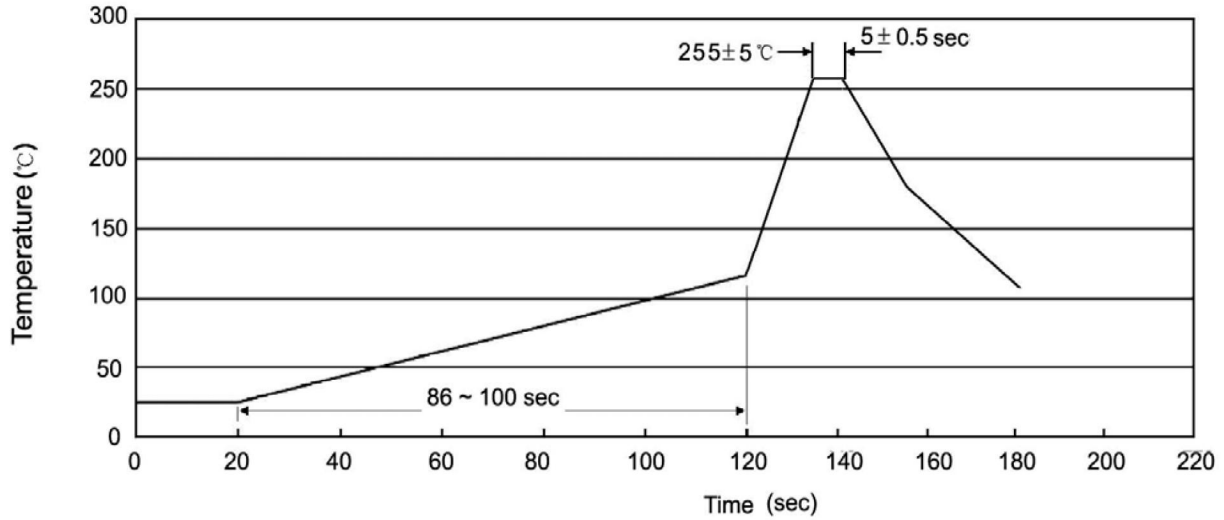
说明：

BR: 为公司代码  
D92-02 : 为型号代码  
\*\*\*\* : 为生产批号代码，随生产批号变化  
—▶|◀—: 为内部结构。

Note:

BR: Company Code.  
D92-02: Product Type.  
\*\*\*\*: Lot No. Code, code change with Lot No  
—▶|◀—: Internal Structure

**波峰焊温度曲线图(无铅) / Temperature Profile for Dip Soldering(Pb-Free)**



说明：

- 1、预热温度 25~150°C，时间 60~90sec;
- 2、峰值温度 255±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:25~150°C, Time:60~90sec.
- 2.Peak Temp.:255±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：270±5°C      时间：10±1 sec.      Temp.:270±5°C      Time:10±1 sec

**包装规格 / Packaging SPEC.**

套管包装 / TUBE

Package Type 封装形式	Units 包装数量					Dimension 包装尺寸 (unit: mm <sup>3</sup> )		
	Units/Tube 只/套管	Tubes/Inner Box 套管/盒	Units/Inner Box 只/盒	Inner Boxes/Outer Box 盒/箱	Units/Outer Box 只/箱	Tube 套管	Inner Box 盒	Outer Box 箱
TO-3P	30	15	450	5	2250	497.5×46×8	555×164×50	575×290×180

**使用说明 / Notices**