

BRG25N120D

Rev.D Oct.-2015

描述 / Descriptions

TO-3P 塑封封装绝缘栅双极晶体管。Insulated-Gate Bipolar Transistor in a TO-3P Plastic Package.

特征 / Features

低栅极电荷、正温度系数、低饱和压降、RoHS 产品。

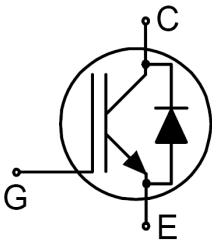
Low gate charge, , Low saturation voltage ,Positive temperature coefficient, RoHS product.

用途 / Applications

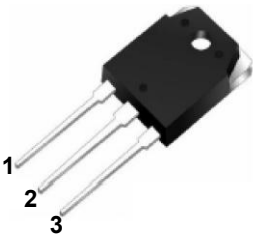
逆变器、变频器、电磁炉、不间断电源。

General purpose inverter, Frequency converters, Induction Heating(IH), Uninterrupted Power Supply(UPS).

内部等效电路 / Equivalent Circuit



引脚排列 / Pinning



PIN1 : Gate

PIN 2 : Collector

PIN 3 : Emitter

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
Collector-emitter voltage	V_{CES}	1200	V
Gate-emitter voltage	V_{GES}	±20	V
Collector current	I_C	50	A
Collector current@ $T_C=100^\circ\text{C}$		25	A
Collector peak current, T_P limited by T_{JMAX}	I_{CM}	75	A
Diode forward current@ $T_C=100^\circ\text{C}$	I_F	25	A
Diode maximum forward current	I_{FM}	75	A
Power dissipation($T_C=25^\circ\text{C}$)	P_D	312	W
Power dissipation($T_C=100^\circ\text{C}$)		125	W
Operating junction and storage temperature range	T_J, T_{stg}	-55~150	°C
Maximum temperature for soldering	T_L	300	°C
IGBT thermal resistance,junction-case	$R_{th(j-c)}$	0.4	°C/W
Diode thermal resistance,junction-case	$R_{th(j-C)}$	2	°C/W
Thermal resistance,junction-ambient	$R_{th(j-a)}$	40	°C/W

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-emitter breakdown voltage	V_{CES}	$V_{GE}=0V$	$I_{CE}=250\mu A$	1200	-	-	V
Zero gate voltage Collector current	I_{CES}	$V_{GE}=0V$	$V_{CE}=1200V$	-	-	1	mA
Gate-body leakage current	I_{GES}	$V_{GE}=\pm 20V$	$V_{CE}=0V$	-	-	±250	nA
Gate threshold voltage	$V_{GE(th)}$	$I_C=15Ma$	$V_{CE}=V_{GE}$	3.5	-	7.5	V
Collector-emitter saturation voltage	$V_{CE(sat)}$	$I_C=25A$	$V_{GE}=15V$	-	2.1	2.5	V
Input capacitance	C_{ies}	$V_{CE}=25V$ $f=1MHz$	$V_{GE}=0V$	-	3430	-	pF
Output capacitance	C_{oes}			-	87	-	
Reverse transfer capacitance	C_{res}			-	206	-	

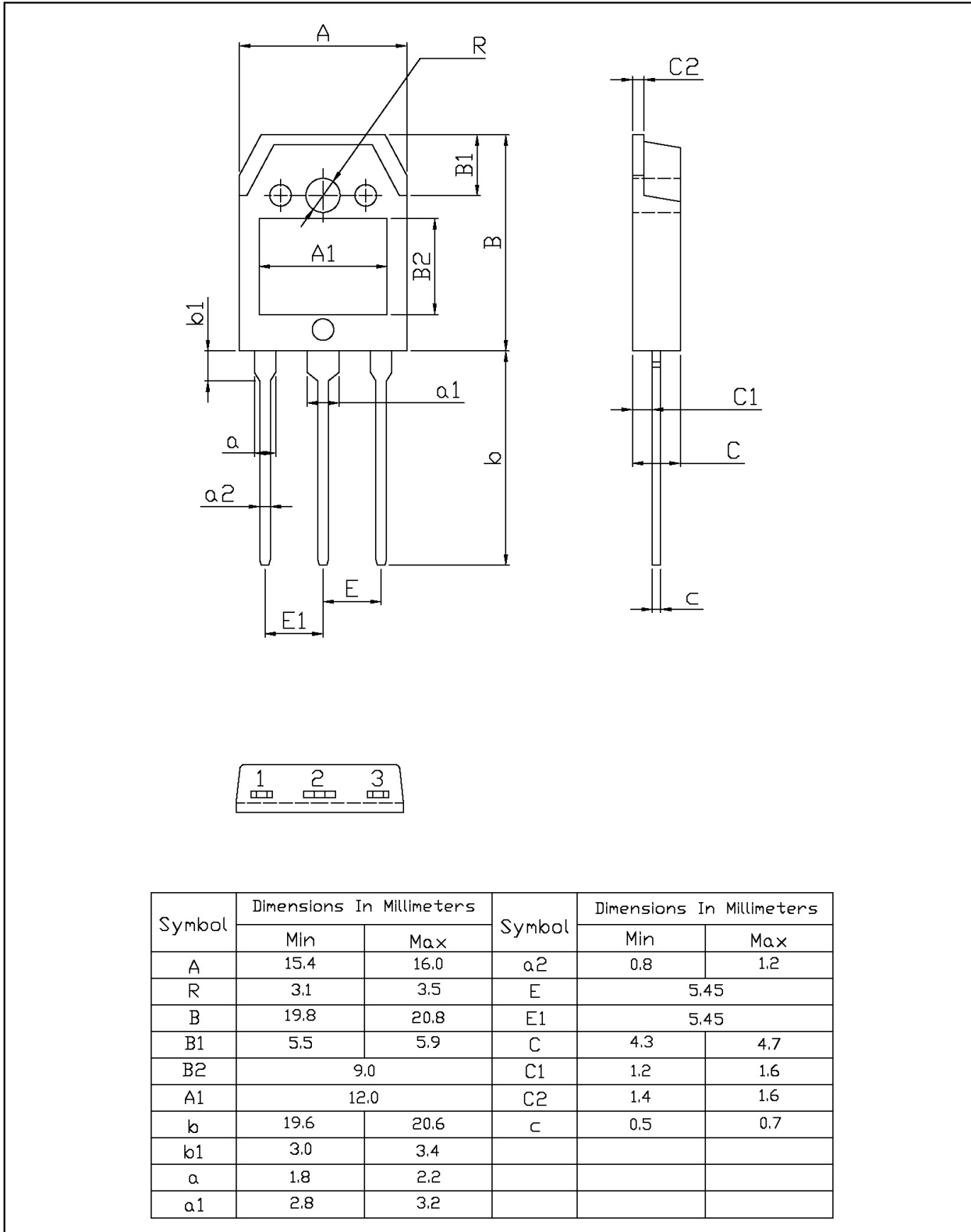
电性能参数 / Electrical Characteristics(Ta=25°C)

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
Turn-on delay time	$t_{d(ON)}$	$V_{CE}=600V$ $I_C=25A$ $R_G=10\Omega$ $V_{GE}=15V$ Inductive Load	-	42	-	ns
Rise time	t_r		-	36	-	
Turn-off delay time	$t_{d(OFF)}$		-	224	-	
Fall time	t_f		-	314	-	
Turn-On Switching Loss	E_{on}	$V_{CE}=600V$ $I_C=25A$ $V_{GE}=15V$	-	1.1	2.2	mJ
Turn-Off Switching Loss	E_{off}		-	1.3	1.5	
Total Switching Loss	E_{ts}		-	2.2	3.6	
Total gate charge	Q_G	$V_{CE}=600V$ $I_C=25A$ $V_{GE}=15V$	-	177	274	nC
Gate-emitter charge	Q_{G-E}		-	16	26	
Gate-collector charge	Q_{G-C}		-	61	94	
Diode forward voltage	V_F	$I_F=25A$	-	1.5	2.7	V
Reverse recovery time	T_{rr}	$I_F=25A$ $di/dt=200A/\mu S$	-	535	585	ns
Diode Peak Reverse Recovery Current	I_{rr}		-	43	85	A
Reverse recovery charge	Q_{rr}		-	13	15	uC

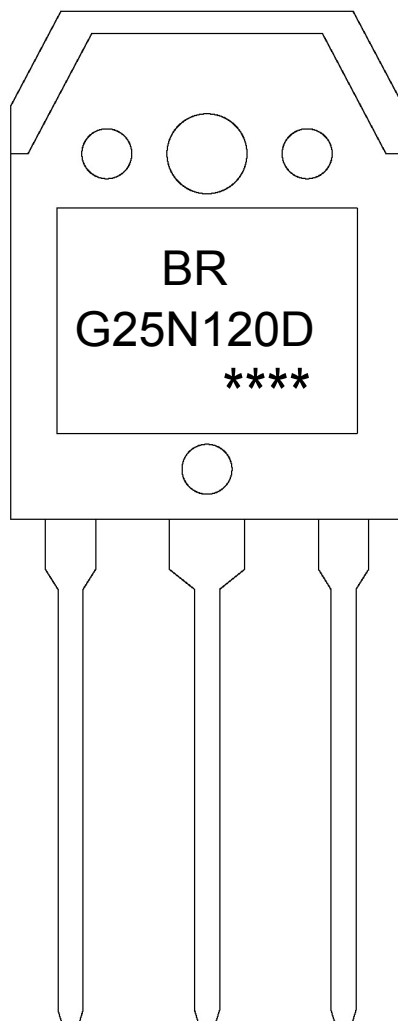
外形尺寸图 / Package Dimensions

T0-3P

单位: mm



印章说明 / Marking Instructions



说明：

BR: 为公司代码

G25N120D : 为产品型号

**** : 为生产批号代码，随生产批号变化。

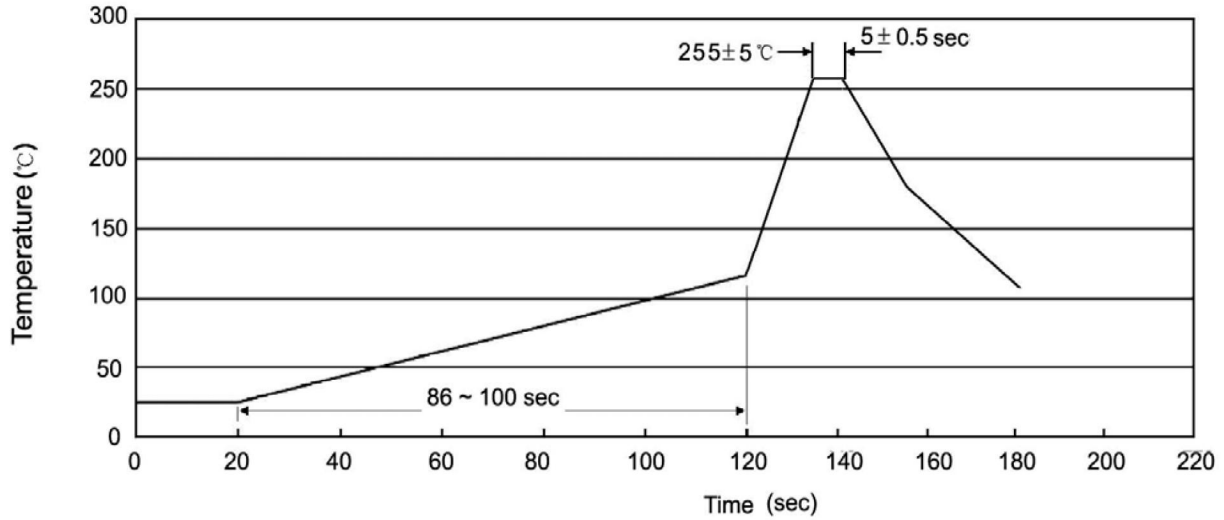
Note:

BR: Company Code.

G25N120D: Product Type.

****: Lot No. Code, code change with Lot No.

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 ³)		
	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