JIEJIE MICROELECTRONICS CO. , Ltd

## BT134-800D   1A TRIACs   Rev.1

DESCRIPTION:

With low holding and latching current, BT134-800D series triacs are especially recommended for use on middle and small resistance type power load. Package SOT-223 listed above is RoHS compliant. (2011/65/EU)
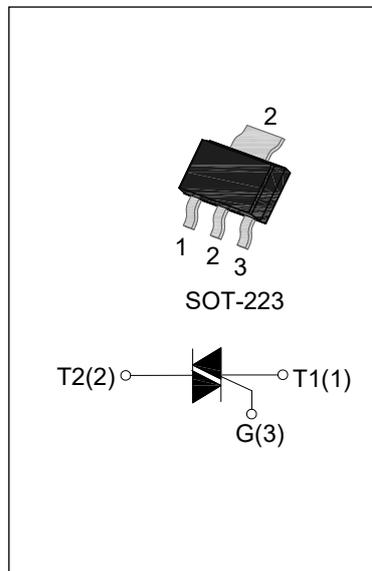
MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	1	A
I_{TSM}	16	A
V_{TM}	≤1.5	V

SOT-223

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T_{stg}	-40 - 150	℃
Operating junction temperature range	T_j	-40 - 125	℃
Repetitive peak off-state voltage (T_j=25℃)	V_{DRM}	800	V
Repetitive peak reverse voltage (T_j=25℃)	V_{RRM}	800	V
RMS on-state current SOT-223 (T_C=75℃)	$I_{T(RMS)}$	1	A
Non repetitive surge peak on-state current (full cycle, F=50Hz)	I_{TSM}	16	A
I^2t value for fusing (tp=10ms)	I^2t	1.28	A^2s
Critical rate of rise of on-state current (I_G=2×I_{GT})	dI/dt	20	A/μs
Peak gate current	I_{GM}	2	A
Average gate power dissipation	$P_{G(AV)}$	0.5	W
Peak gate power	P_{GM}	5	W
Peak pulse voltage (T_j=25℃; non-repetitive,off-state;FIG.8)	V_{PP}	3	kV

ELECTRICAL CHARACTERISTICS (T$_j$=25℃ unless otherwise specified)

Symbol	Test Condition	Quadrant	Value		Unit
I$_{GT}$	V$_D$=12V R$_L$=33Ω	Ⅰ-Ⅱ-Ⅲ	MAX	5	mA
		Ⅳ		10	
V$_{GT}$		ALL	MAX	1.3	V
V$_{GD}$	V$_D$=V$_{DRM}$ T$_j$=125℃ R$_L$=3.3KΩ	ALL	MIN	0.2	V
I$_L$	I$_G$=1.2I$_{GT}$	Ⅰ-Ⅲ-Ⅳ	MAX	5	mA
		Ⅱ		20	
I$_H$	I$_T$=200mA		MAX	7	mA
dv/dt	V$_D$=2/3V$_{DRM}$ Gate Open T$_j$=125℃		MIN	50	V/μs
(dv/dt)c	(dI/dt)c=0.44A/ms, T$_j$=110℃		MIN	1	V/μs
t$_{on}$	I$_G$=10mA I$_A$=20mA I$_R$=2mA T$_j$=25℃		TYP	5	μs
t$_{off}$			TYP	50	μs

STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
V$_{TM}$	I$_{TM}$=1.4A tp=380μs	T$_j$=25℃	1.5	V
V$_{TO}$	Threshold voltage	T$_j$=125℃	0.9	V
Rd	Dynamic resistance	T$_j$=125℃	257	mΩ
I$_{DRM}$	V$_D$=V$_{DRM}$ V$_R$=V$_{RRM}$	T$_j$=25℃	5	μA
I$_{RRM}$		T$_j$=125℃	0.5	mA

THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
R$_{th(j-c)}$	junction to case(AC)	SOT-223	41.3	℃/W
R$_{th(j-a)}$	junction to ambient	SOT-223	60	℃/W

MARKING

BT134-800D
JJ XXX XXX

Year ──── XXX XXX ──── Production
Month ────   code
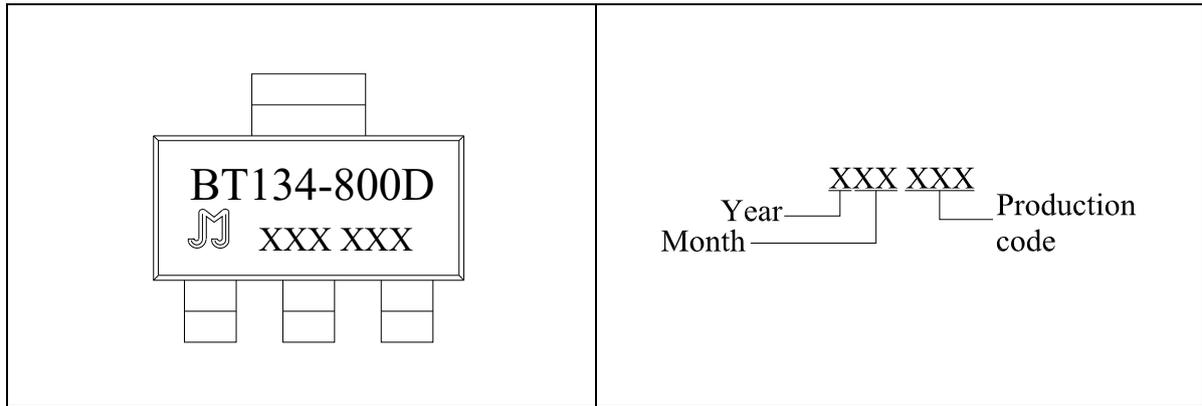
FIG.1: Maximum power dissipation versus RMS on-state current

P(w)

2.0
1.6
1.2
0.8
0.4

0   0.3   0.6   0.9   1.2   1.5

IT(RMS)(A)
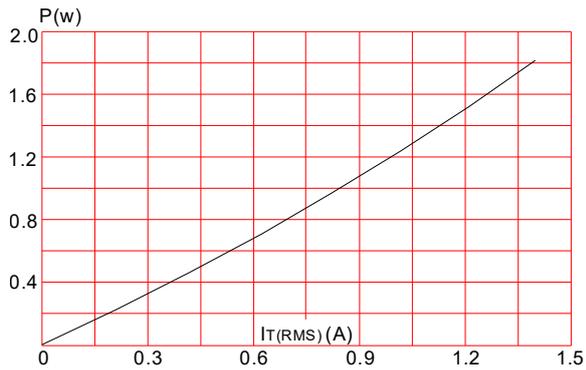
FIG.2: RMS on-state current versus case temperature

IT(RMS)(A)

α=180°

1.5

1.0   SOT-223

0.5

0

0   25   50   75   100   125

Tc (℃)
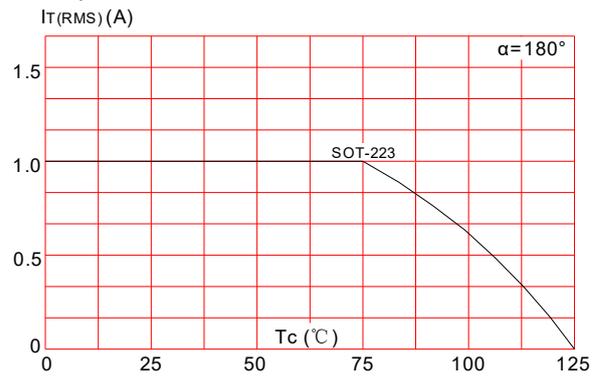
FIG.3: RMS on-state current versus ambient temperature (printed circuit board FR4, copper thickness: 35μm) (full cycle)

IT(RMS)(A)

2.5   α=180°

2.0
    SOT-223
1.5

1.0

0.5

0

0   25   50   75   100   125

Ta (℃)
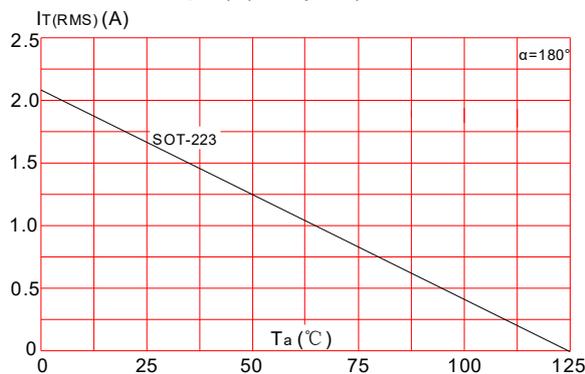
FIG.4: Surge peak on-state current versus number of cycles

ITSM(A)

20   t=20ms
         One cycle
16

12

8

4

0

1   10   100   1000

Number of cycles
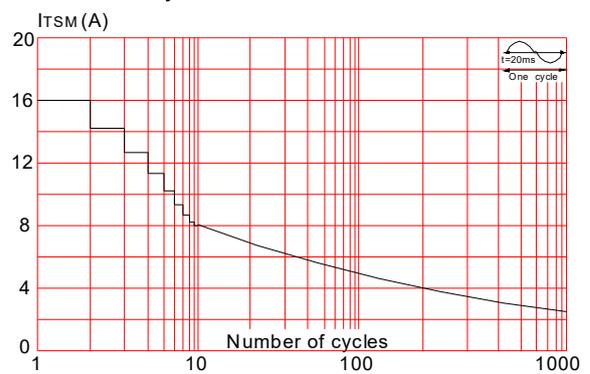
FIG.5: On-state characteristics (maximum values)
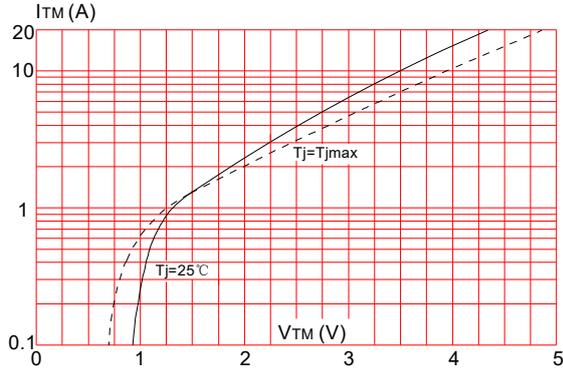
**FIG.6:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width tp<20ms and corresponding value of I²t (dI/dt < 20A/μs)
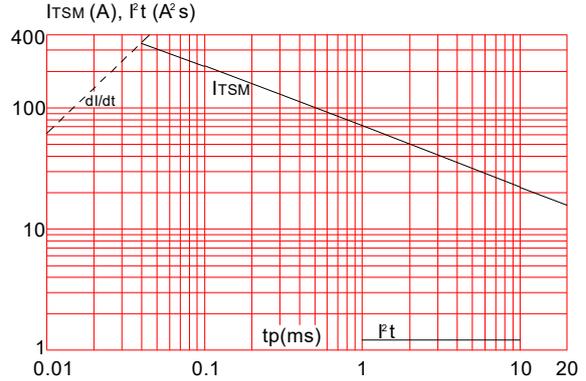

FIG.7: Relative variations of gate trigger current, holding current and latching current versus junction temperature
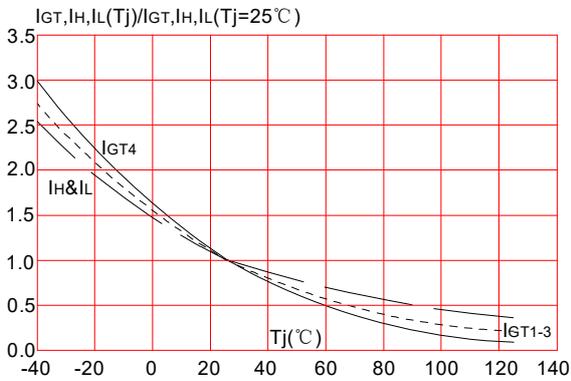

FIG.8：Test circuit for inductive and resistive loads to IEC-61000-4-5 standards.
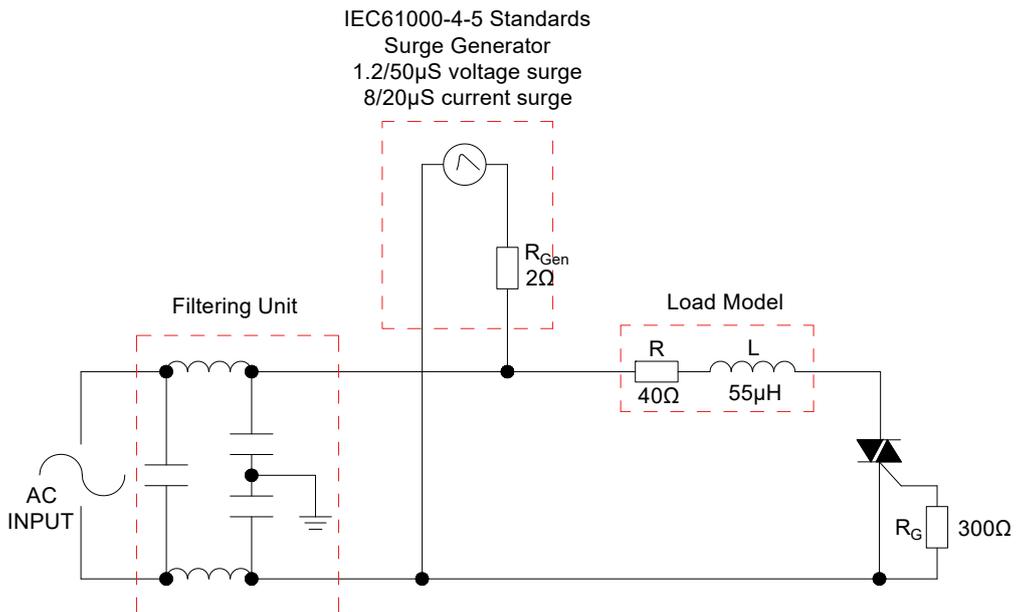
SOLDERING PARAMETERS

Reflow Condition		Pb-Free assembly (see figure at right)
Pre Heat	-Temperature Min ($T_{s(min)}$)	+150℃
	-Temperature Max($T_{s(max)}$)	+200℃
	-Time (Min to Max) (ts)	60-180 secs.
Average ramp up rate (Liquidus Temp (T_L)to peak)		3℃/sec. Max
$T_{s(max)}$ to T_L - Ramp-up Rate		3℃/sec. Max
Reflow	-Temperature(T_L) (Liquidus)	+217℃
	-Temperature(t_L)	60-150 secs.
Peak Temp (T_p)		+260(+0/-5)℃
Time within 5℃of actual Peak Temp (t_p)		20-40secs.
Ramp-down Rate		6℃/sec. Max
Time 25℃ to Peak Temp (T_P)		8 min. Max
Do not exceed		+260℃
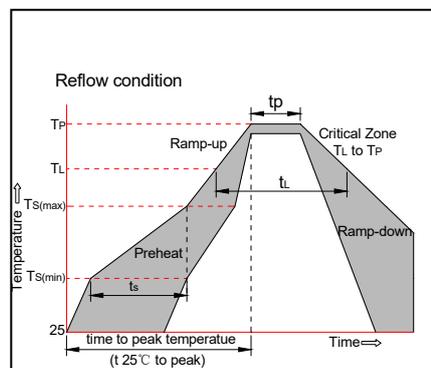
ORDERING INFORMATION

Order code	Voltage V_{DRM}/V_{RRM} (V)	IGT(mA)		Package	Base qty. (pcs)	Delivery mode
		I -II-III	IV			
BT134-800D	800	5	10	SOT-223	4,000	Tape & Reel

Document Revision History

Date	Revision	Changes
Mar 16, 2022	1	Last update

JieJie Microelectronics CO. , Ltd

PACKAGE MECHANICAL DATA
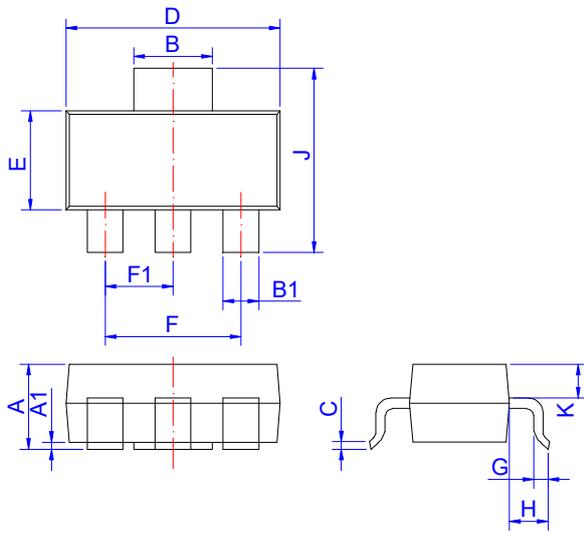
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	1.5	1.6	1.8	0.059	0.063	0.071
A1	0.01	0.06	0.10	0.001	0.002	0.004
B	2.9	3.0	3.1	0.114	0.118	0.122
B1	0.6	0.7	0.8	0.024	0.028	0.031
C	0.22	0.26	0.32	0.009	0.010	0.013
D	6.3	6.5	6.7	0.248	0.256	0.264
E	3.3	3.5	3.7	0.130	0.138	0.146
F	4.4		4.8	0.173		0.189
F1	2.2		2.4	0.087		0.094
G	0.5		1.0	0.020		0.039
H	1.5	1.75	2.0	0.059	0.069	0.079
J	6.7	7.0	7.3	0.264	0.276	0.287
K	0.8	0.9	1.0	0.031	0.035	0.039

FOOTPRINT-SOT-223 (dimensions in mm)

JieJie Microelectronics CO. , Ltd
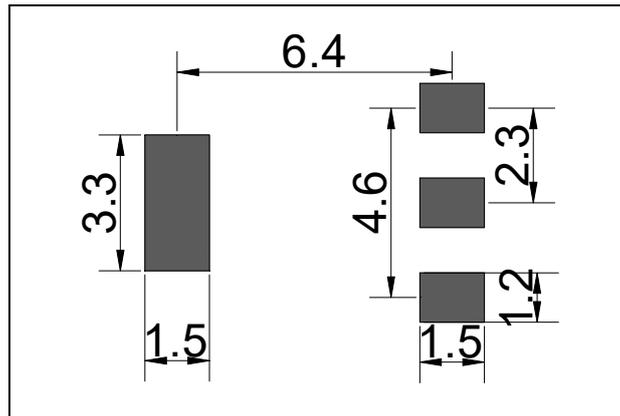
DELIVERY MODE
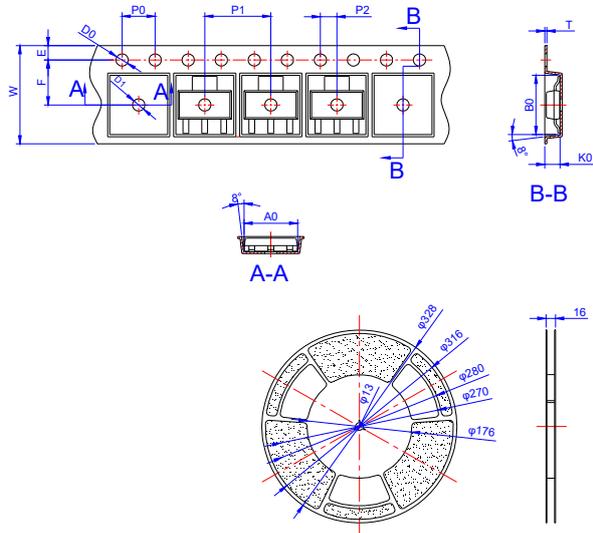
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
W	-	12.00	12.20	-	0.472	0.480
E	1.65	1.75	1.85	0.065	0.069	0.073
F	5.45	5.50	5.55	0.215	0.217	0.219
D0	-	1.50	1.60	-	0.059	0.063
D1	-	1.55	1.80	-	0.061	0.071
P0	3.90	4.00	4.10	0.154	0.157	0.161
P1	7.90	8.00	8.10	0.311	0.315	0.319
P2	1.95	2.00	2.05	0.077	0.079	0.081
10P0	39.80	40.00	40.20	1.567	1.575	1.583
A0	6.73	6.83	6.93	0.265	0.269	0.273
B0	7.30	7.40	7.50	0.287	0.291	0.295
K0	1.78	1.88	1.98	0.070	0.074	0.078
T	0.25	0.30	0.35	0.010	0.012	0.014

PACKAGE	OUTLINE	REEL (PCS)	PER CARTON (PCS)	TAPE & REEL
SOT-223	TAPING	4,000	40,000	13 inch