



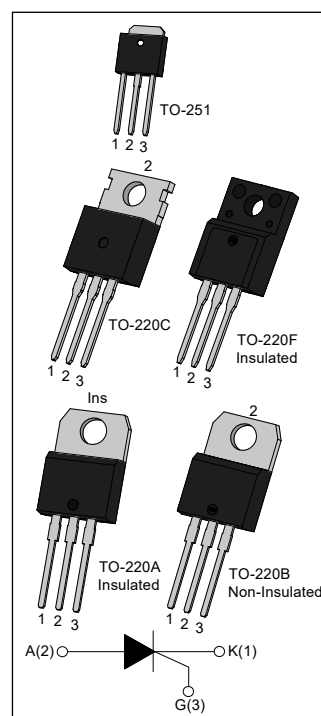
## JCTx16 Series 16A SCRs

Rev.9.0

### DESCRIPTION:

With high ability to withstand the shock loading of large current, JCTx16 series of silicon controlled rectifiers provide high dv/dt rate with strong resistance to electromagnetic interference. They are especially recommended for use on solid state relay, motorcycle, power charger, T-tools etc.

From all three terminals to external heatsink, JCTx16A provides a rated insulation voltage of 2500 V<sub>RMS</sub>, and JCTx16F provides a rated insulation voltage of 2000 V<sub>RMS</sub>, complying with UL standards (File ref: E252906). All the packages mentioned are RoHS compliant. (2011/65/EU)



### MAIN FEATURES

Symbol	JCT616	JCT816
V <sub>DRM</sub> / V <sub>R<sub>RM</sub></sub>	600V	800V
I <sub>T(RMS)</sub>	16A	
I <sub>GT</sub>	≤15mA	

### ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Value	Unit
Storage junction temperature range	T <sub>stg</sub>	-40-150	°C
Operating junction temperature range	T <sub>j</sub>	-40-150	°C
Repetitive peak off-state voltage(T <sub>j</sub> =25°C)	V <sub>DRM</sub>	600/800	V
Repetitive peak reverse voltage(T <sub>j</sub> =25°C)	V <sub>R<sub>RM</sub></sub>	600/800	V
RMS on-state current	TO-220A(Ins) / TO-220F(Ins) (T <sub>C</sub> =100°C)	16	A
	TO-251/ TO-220C TO-220B(Non-Ins) (T <sub>C</sub> =120°C)		

Non repetitive surge peak on-state current (tp=10ms)	$I_{TSM}$	180	A
$I^2t$ value for fusing (tp=10ms)	$I^2t$	162	$A^2s$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )	di/dt	50	$A/\mu s$
Peak gate current	$I_{GM}$	4	A
Average gate power dissipation	$P_{G(AV)}$	1	W
Peak gate power	$P_{GM}$	5	W

**ELECTRICAL CHARACTERISTICS** ( $T_j=25^\circ C$  unless otherwise specified)

Symbol	Test Condition	Value			Unit
		MIN.	TYP.	MAX.	
$I_{GT}$	$V_D=12V R_L=33\Omega$	-	-	15	mA
$V_{GT}$		-	-	1.3	V
$V_{GD}$	$V_D=V_{DRM} T_j=150^\circ C R_L=3.3K\Omega$	0.2	-	-	V
$I_L$	$I_G=1.2I_{GT}$	-	-	60	mA
$I_H$	$I_T=500mA$	-	-	50	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate Open $T_j=150^\circ C$	400	-	-	$V/\mu s$

**STATIC CHARACTERISTICS**

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM}=32A$ tp=380 $\mu s$	$T_j=25^\circ C$	1.55	V
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^\circ C$	5	$\mu A$
$I_{RRM}$		$T_j=150^\circ C$	2	mA

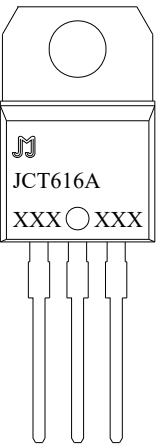
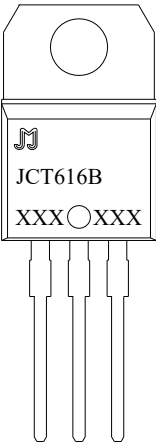
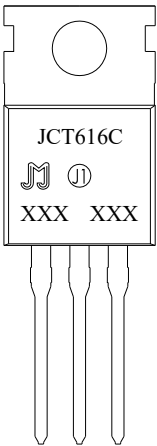
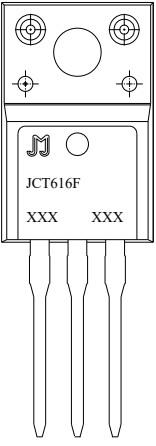
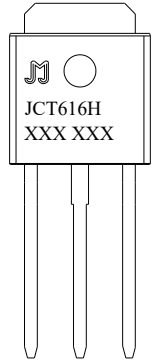
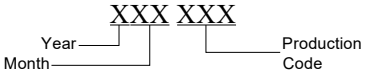
**THERMAL RESISTANCES**

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)/ TO-220F(Ins)	2.4	$^\circ C/W$
		TO-220B(Non-Ins) TO-220C	1.1	
		TO-251	1.4	

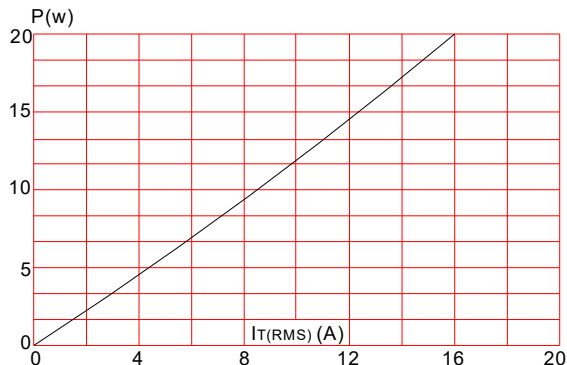
## ORDERING INFORMATION

<b>J</b>	<b>CT</b>	<b>6</b>	<b>16</b>	<b>B</b>	<b>-/</b>
JieJie Microelectronics Co.,Ltd	SCRs	6: $V_{DRM}/V_{RRM} \geq 600V$ 8: $V_{DRM}/V_{RRM} \geq 800V$	$I_{T(RMS)}: 16A$	A: TO-220A(Ins) F: TO-220F(Ins) B: TO-220B(Non-Ins) C: TO-220C H: TO-251	Blank: Tube

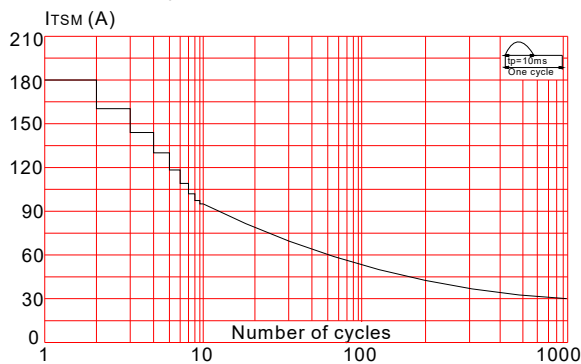
## MARKING

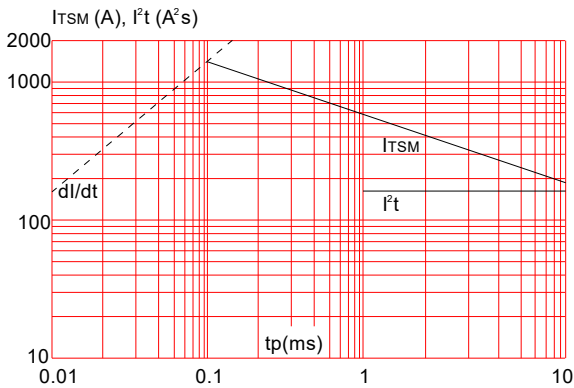
**FIG.1** Maximum power dissipation versus RMS on-state current



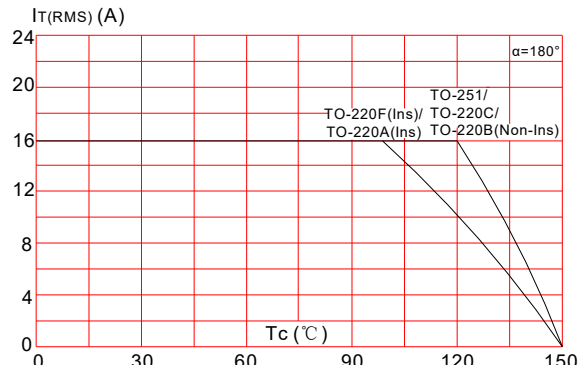
**FIG.3:** Surge peak on-state current versus number of cycles



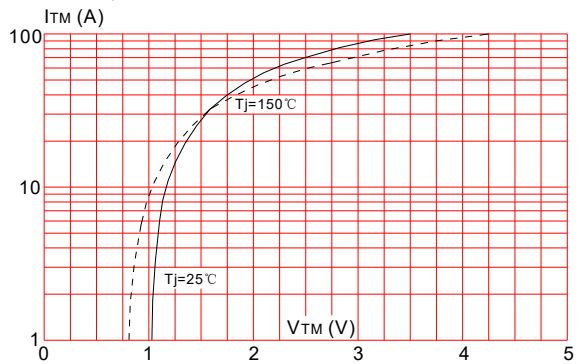
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 10\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



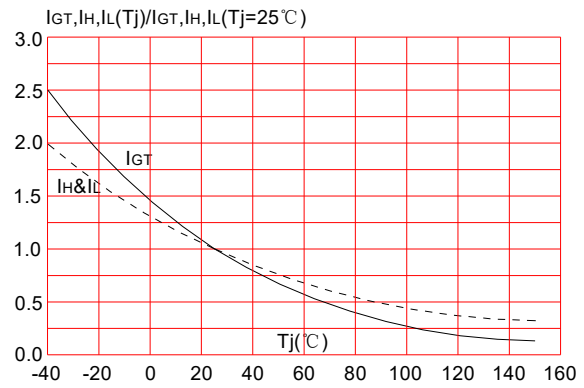
**FIG.2:** RMS on-state current versus case temperature



**FIG.4:** On-state characteristics (maximum values)



**FIG.6:** Relative variations of gate trigger current, holding current and latching current versus junction temperature



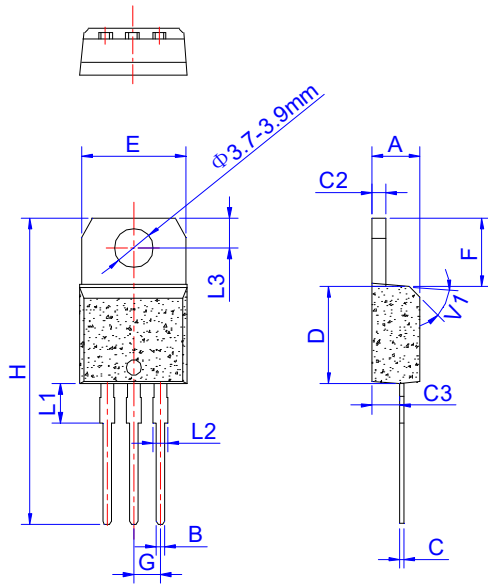
**ORDERING INFORMATION**

Order code	Voltage $V_{DRM}/V_{RRM}$ (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
JCT616/816A	600/800	15	TO-220A(Ins)	50	Tube
JCT616/816B			TO-220B(Non-Ins)		
JCT616/816C			TO-220C		
JCT616/816F			TO-220F(Ins)		
JCT616/816H			TO-251	80	

**Document Revision History**

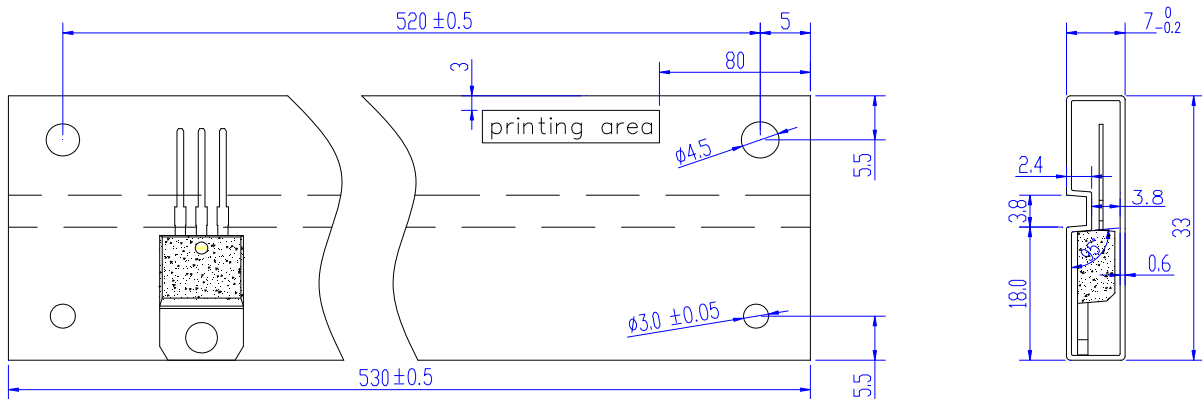
Date	Revision	Changes
June 2, 2021	8	Last update
June 20, 2022	9	Renew dV/dt

PACKAGE MECHANICAL DATA



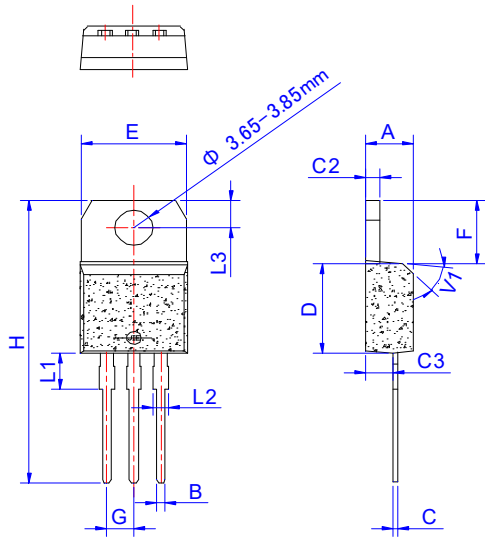
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.25		6.85	0.246		0.270
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	3.45		4.05	0.136		0.159
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

DELIVERY MODE



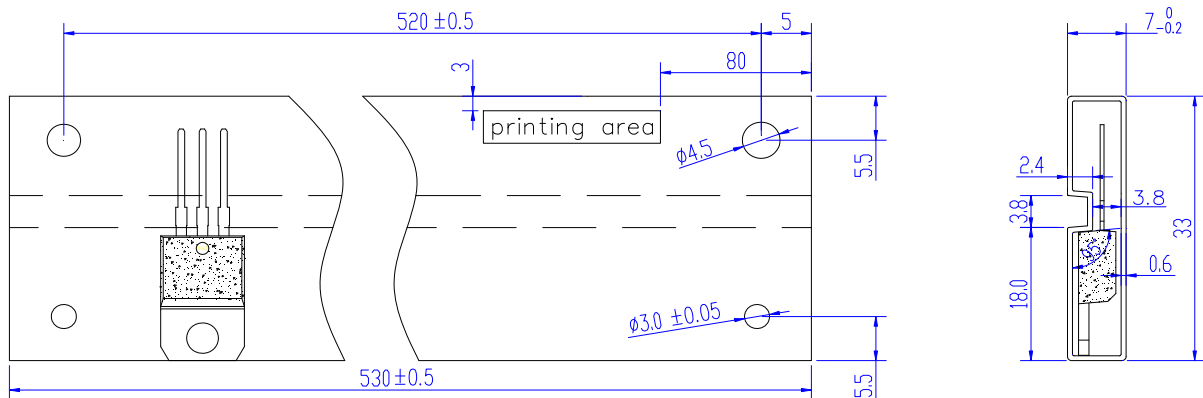
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220A	TUBE	50	1,000	5,000

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.60		10.4	0.378		0.409
F	6.20		6.60	0.244		0.260
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	3.50		4.10	0.138		0.161
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116
V1		45°			45°	

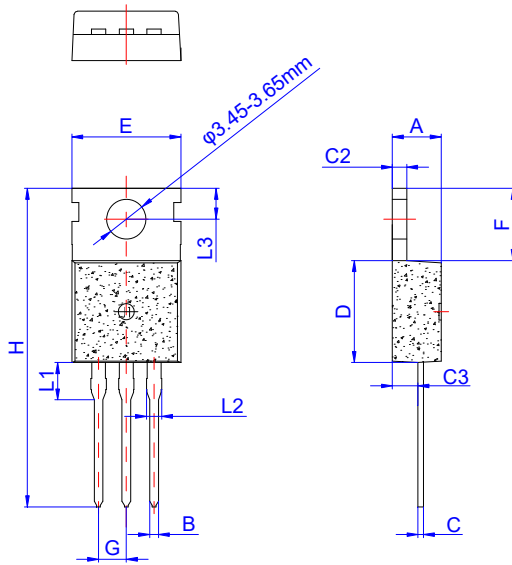
DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220B	TUBE	50	1,000	5,000

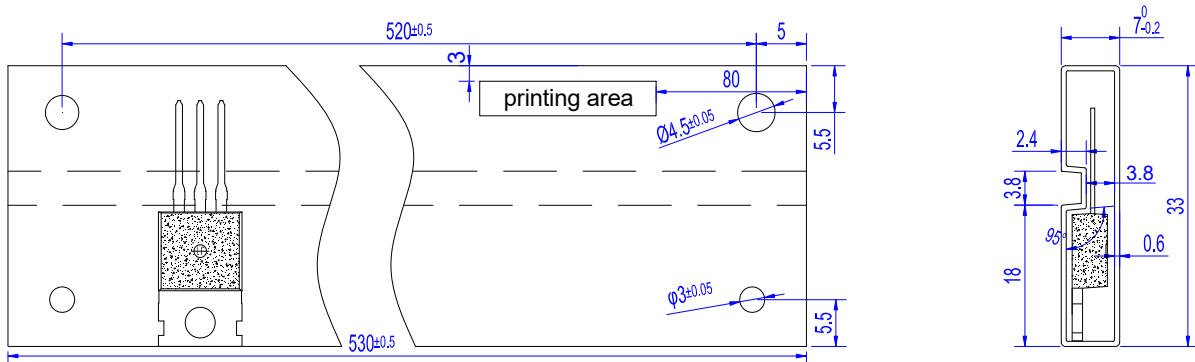


PACKAGE MECHANICAL DATA



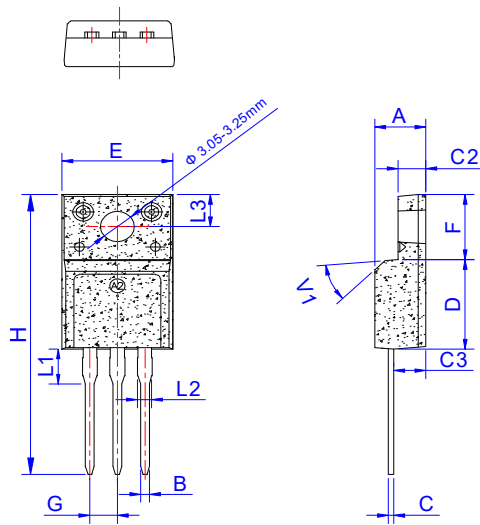
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.25		1.35	0.049		0.053
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	2.70		3.30	0.106		0.130
L2	1.14		1.70	0.045		0.067
L3	2.65		2.95	0.104		0.116

DELIVERY MODE



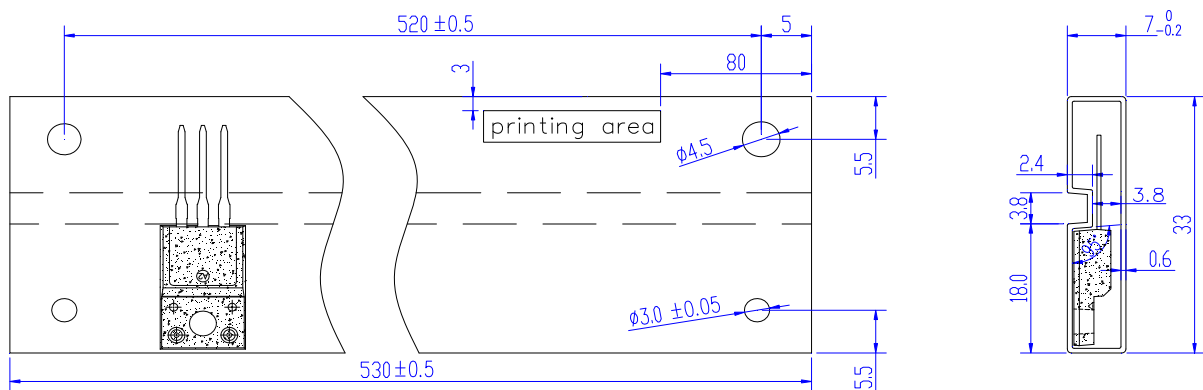
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220C	TUBE	50	1,000	5,000

PACKAGE MECHANICAL DATA



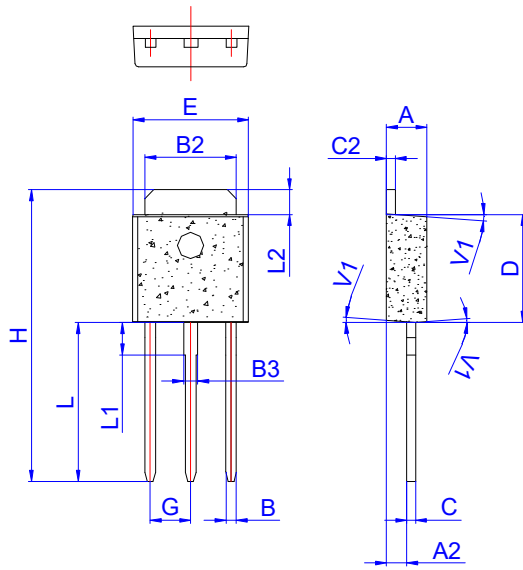
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.50		4.90	0.177		0.193
B	0.74	0.80	0.83	0.029	0.031	0.033
C	0.47		0.65	0.019		0.026
C2	2.45		2.75	0.096		0.108
C3	2.60		3.00	0.102		0.118
D	8.80		9.30	0.346		0.366
E	9.80		10.4	0.386		0.410
F	6.40		6.80	0.252		0.268
G	2.40		2.70	0.094		0.106
H	28.0		29.8	1.102		1.173
L1	3.20		3.80	0.126		0.150
L2	1.14		1.70	0.045		0.067
L3	3.20		3.60	0.126		0.142
V1		45°			45°	

DELIVERY MODE



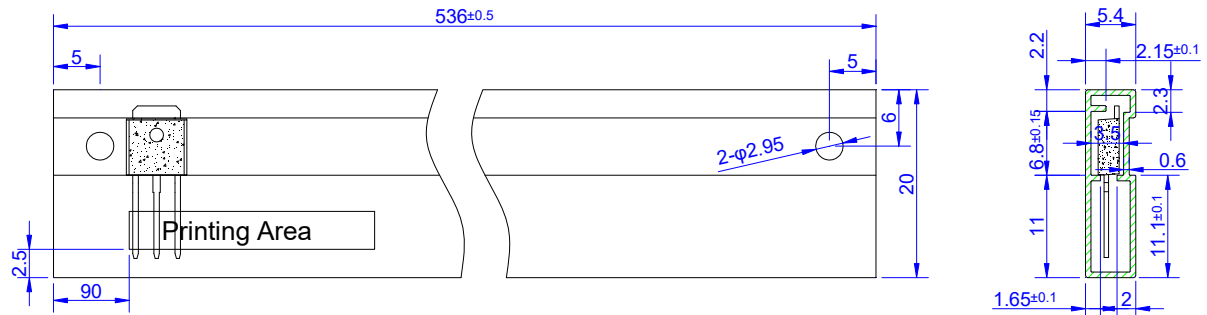
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TO-220F	TUBE	50	1,000	5,000

PACKAGE MECHANICAL DATA



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.20		2.40	0.086		0.095
A2	1.00		1.30	0.039		0.051
B	0.50		0.70	0.020		0.028
B2	5.10		5.40	0.200		0.213
B3	0.70		1.00	0.028		0.039
C	0.45		0.62	0.018		0.024
C2	0.48		0.62	0.019		0.024
D	6.00		6.20	0.236		0.244
E	6.40		6.70	0.252		0.264
G	2.20		2.40	0.087		0.094
H	16.0		17.0	0.630		0.669
L	8.90		9.40	0.350		0.370
L1	1.80		2.20	0.071		0.087
L2	1.25		1.55	0.049		0.061
V1		4°			4°	

DELIVERY MODE



PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-251	TUBE	80	4,000	20,000



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