



## T16xxH Series 16A TRIACs

Rev.9.0

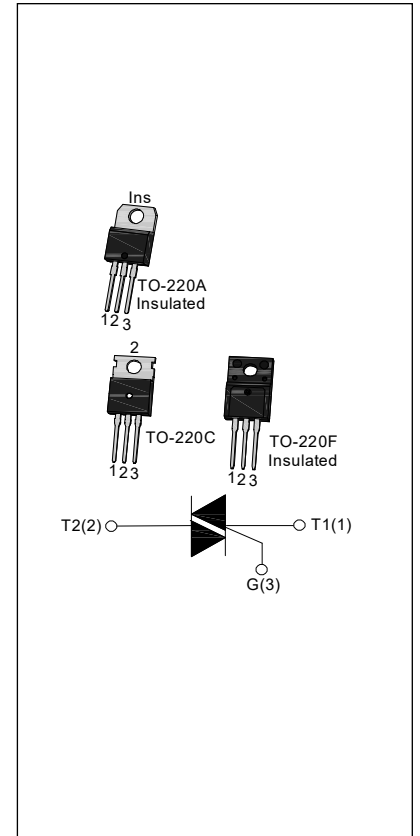
### DESCRIPTION:

T16xxH series triacs of high junction temperature with high dv/dt rate with strong resistance to electromagnetic interference provide high ability to withstand the shock loading of large current. They are especially recommended for use on inductive load and high environment temperature condition.

T16xxH-xxA provides insulation voltage rated at 2500V<sub>RMS</sub> and T16xxH-xxF provides insulation voltage rated at 2000V<sub>RMS</sub> from all three terminals to external heatsink complying with UL standards (File ref: E252906). All the packages are RoHS compliant. (2011/65/EU)

### MAIN FEATURES

Symbol	Value	Unit
$I_{T(RMS)}$	16	A
$V_{DRM}/V_{RRM}$	600/800	V
$T_{jmax}$	150	°C



### ABSOLUTE MAXIMUM RATINGS

Parameter		Symbol	Value	Unit
Storage junction temperature range		$T_{stg}$	-40-150	°C
Operating junction temperature range		$T_j$	-40-150	°C
Repetitive peak off-state voltage( $T_j=25^\circ\text{C}$ )		$V_{DRM}$	600/800	V
Repetitive peak reverse voltage( $T_j=25^\circ\text{C}$ )		$V_{RRM}$	600/800	V
RMS on-state current	TO-220A(Ins)/ TO-220F(Ins) ( $T_c=100^\circ\text{C}$ )	$I_{T(RMS)}$	16	A
	TO-220C ( $T_c=120^\circ\text{C}$ )			
Non repetitive surge peak on-state current (full cycle, $F=50\text{Hz}$ )		$I_{TSM}$	160	A
$I^2t$ value for fusing ( $t_p=10\text{ms}$ )		$I^2t$	128	$\text{A}^2\text{s}$
Critical rate of rise of on-state current ( $I_G=2 \times I_{GT}$ )		$di/dt$	50	$\text{A}/\mu\text{s}$

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 ( $T_j=25^{\circ}\text{C}$ unless otherwise specified)

Symbol	Test Condition	Quadrant		Value				Unit
				T1610H	T1620H	T1635H	T1650H	
$I_{GT}$	$V_D=12\text{V } R_L=33\Omega$	I - II - III	MAX	10	20	35	50	mA
$V_{GT}$		I - II - III	MAX	1.5				V
$V_{GD}$	$V_D=V_{DRM} T_j=150^{\circ}\text{C}$ $R_L=3.3\text{K}\Omega$	I - II - III	MIN	0.2				V
$I_L$	$I_G=1.2I_{GT}$	I - III	MAX	20	40	50	80	mA
		II		35	55	70	100	
$I_H$	$I_T=100\text{mA}$		MAX	20	30	45	70	mA
dV/dt	$V_D=2/3V_{DRM}$ Gate open $T_j=150^{\circ}\text{C}$		MIN	200	500	1000	1500	V/ $\mu\text{s}$

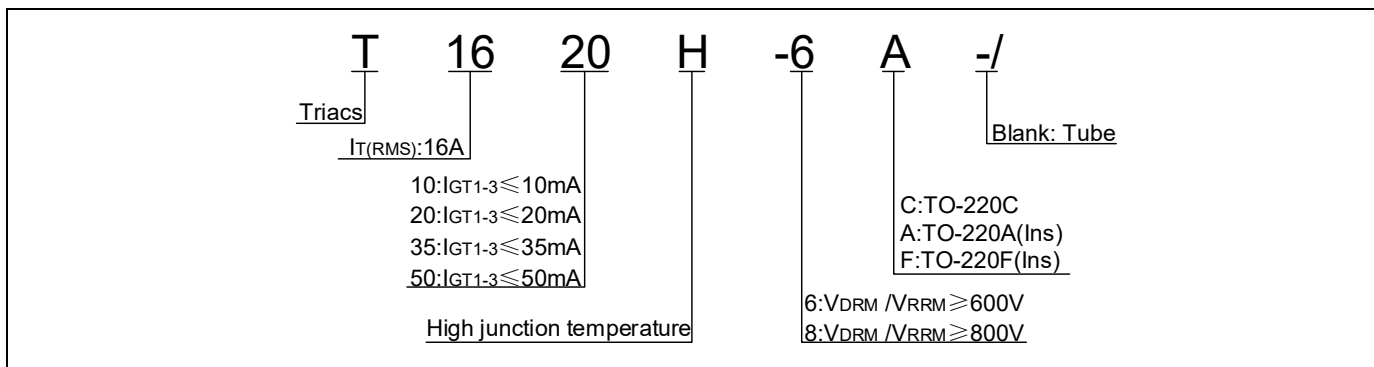
## STATIC CHARACTERISTICS

Symbol	Parameter		Value(MAX)	Unit
$V_{TM}$	$I_{TM}=22.5\text{A } t_p=380\mu\text{s}$	$T_j=25^{\circ}\text{C}$	1.4	V
$V_{TO}$	Threshold voltage	$T_j=150^{\circ}\text{C}$	0.95	V
$R_d$	Dynamic resistance	$T_j=150^{\circ}\text{C}$	20	m $\Omega$
$I_{DRM}$	$V_D=V_{DRM} V_R=V_{RRM}$	$T_j=25^{\circ}\text{C}$	5	$\mu\text{A}$
$I_{RRM}$		$T_j=150^{\circ}\text{C}$	2	mA

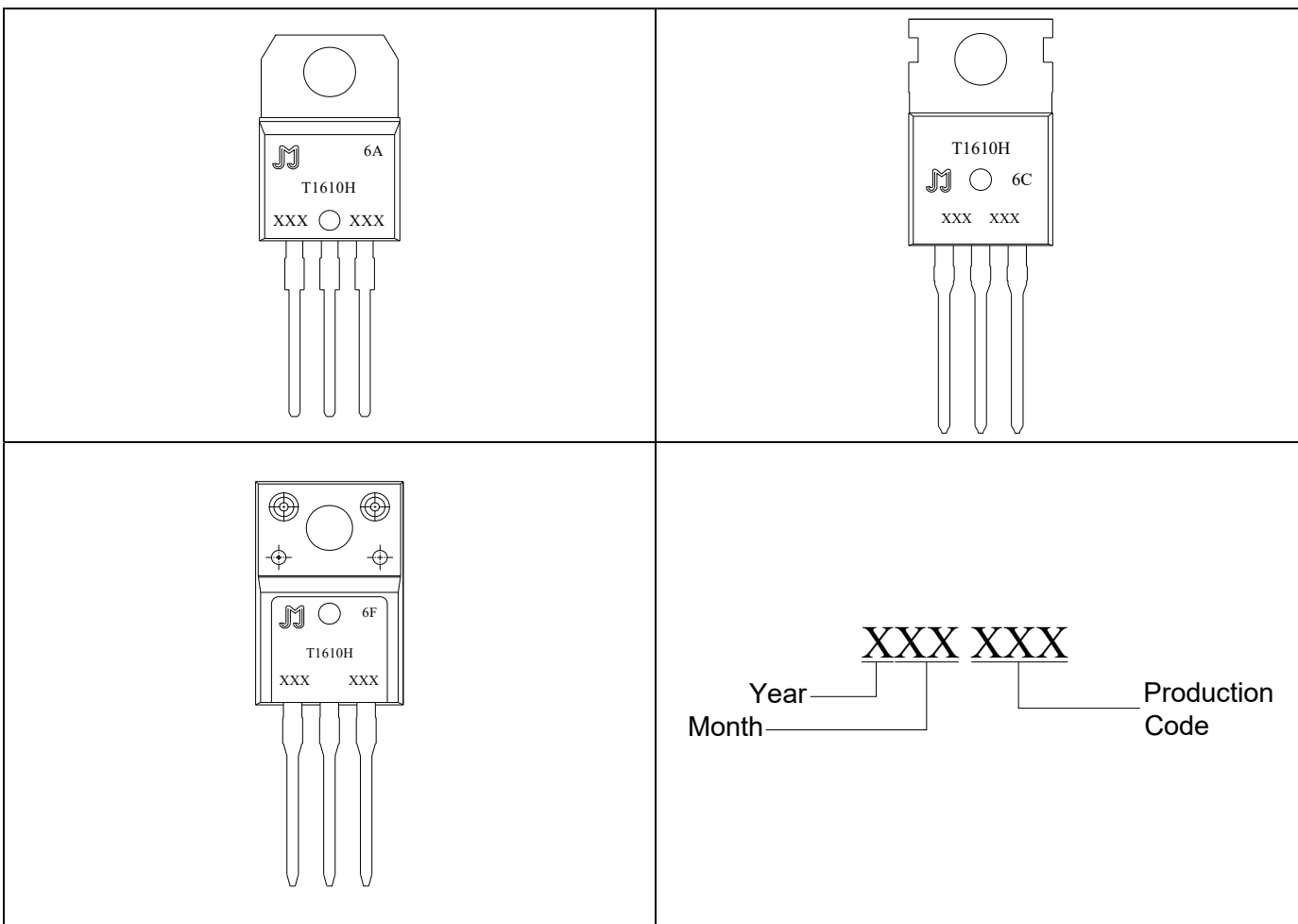
## THERMAL RESISTANCES

Symbol	Parameter		Value	Unit
$R_{th(j-c)}$	junction to case(AC)	TO-220A(Ins)/ TO-220F(Ins)	2.3	$^{\circ}\text{C/W}$
		TO-220C	1.4	

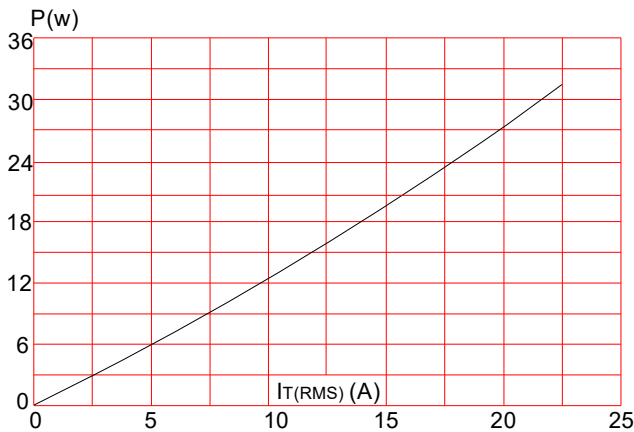
## ORDERING INFORMATION



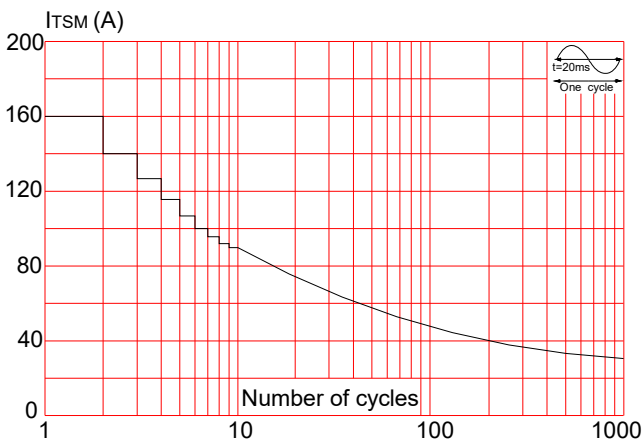
## MARKING



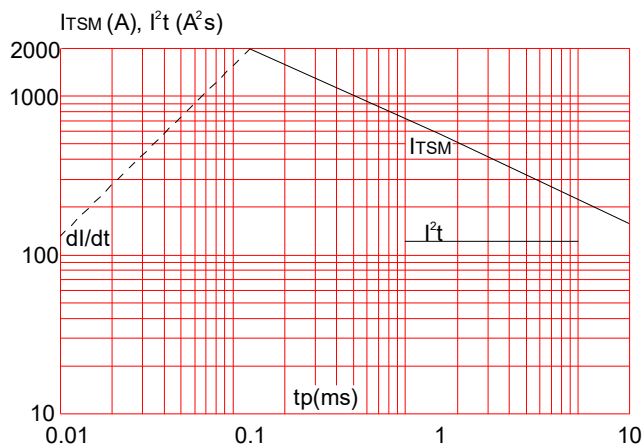
**FIG.1** Maximum power dissipation versus RMS on-state current



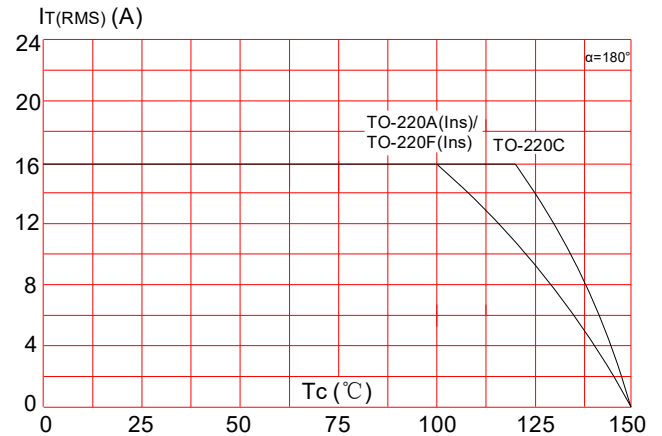
**FIG.3:** Surge peak on-state current versus number of cycles



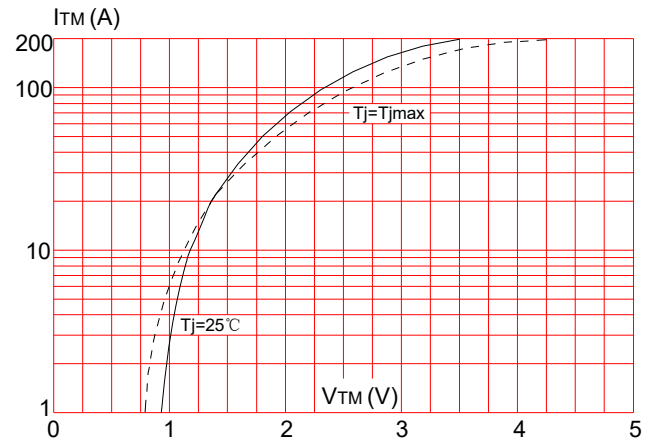
**FIG.5:** Non-repetitive surge peak on-state current for a sinusoidal pulse with width  $t_p < 20\text{ms}$ , and corresponding value of  $I^2t$  ( $di/dt < 50\text{A}/\mu\text{s}$ )



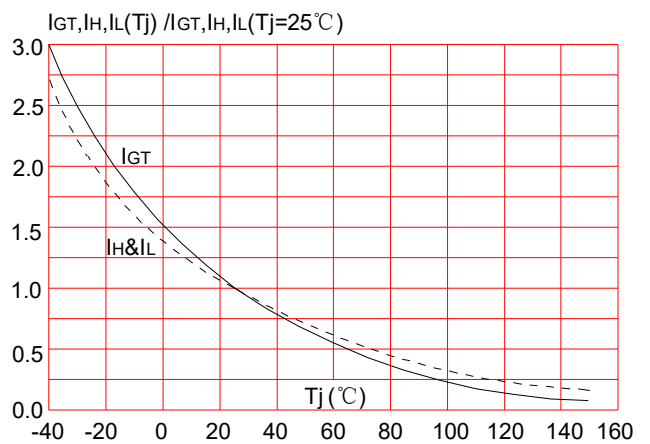
**FIG.2:** RMS on-state current versus case temperature



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



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



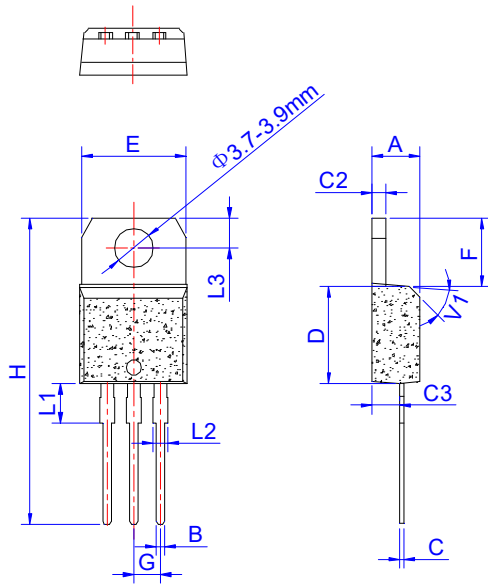
**ORDERING INFORMATION**

Order code	Voltage V <sub>DRM</sub> /V <sub>R<sub>RRM</sub></sub> (V)	IGT(mA)	Package	Base qty. (pcs)	Delivery mode
T1610H-6/8A	600/800	10	TO-220A(Ins)	50	Tube
T1620H-6/8A		20			
T1635H-6/8A		35			
T1650H-6/8A		50			
T1610H-6/8C		10	TO-220C		
T1620H-6/8C		20			
T1635H-6/8C		35			
T1650H-6/8C		50			
T1610H-6/8F		10	TO-220F(Ins)		
T1620H-6/8F		20			
T1635H-6/8F		35			
T1650H-6/8F		50			

**Document Revision History**

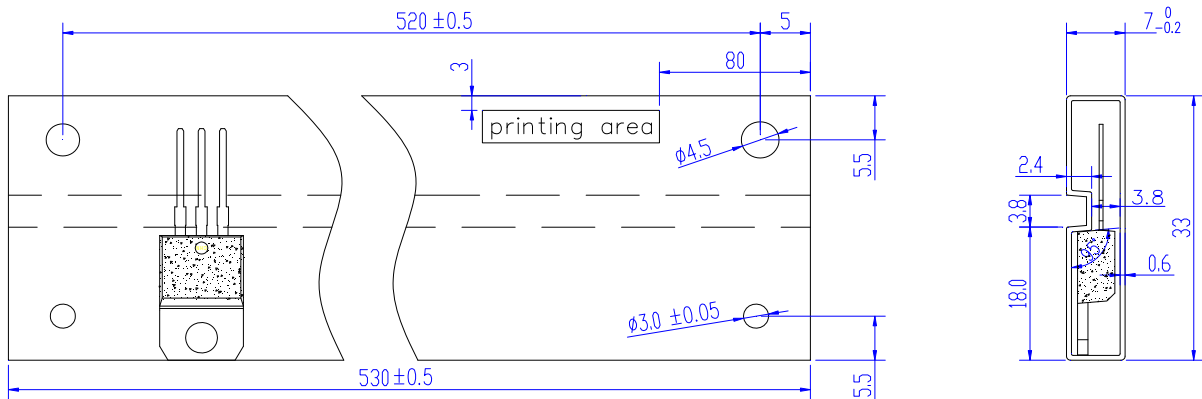
Date	Revision	Changes
May 10, 2021	6	Last update
Aug 20, 2021	7	Add TO-220C package
Jan 19, 2022	8	Renew V <sub>to</sub> & R <sub>d</sub>
Jul 05, 2022	9	Delete Package TO-220B

PACKAGE MECHANICAL DATA



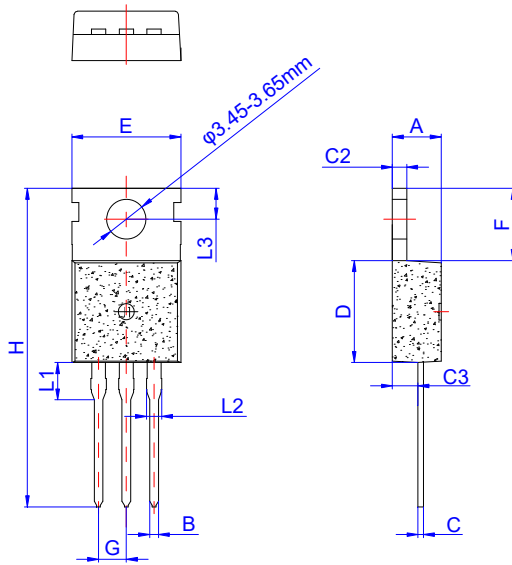
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.61		0.88	0.024		0.035
C	0.46		0.70	0.018		0.028
C2	1.21		1.32	0.048		0.052
C3	2.40		2.72	0.094		0.107
D	8.60		9.70	0.339		0.382
E	9.80		10.4	0.386		0.409
F	6.25		6.85	0.246		0.270
G	2.40		2.70	0.094		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



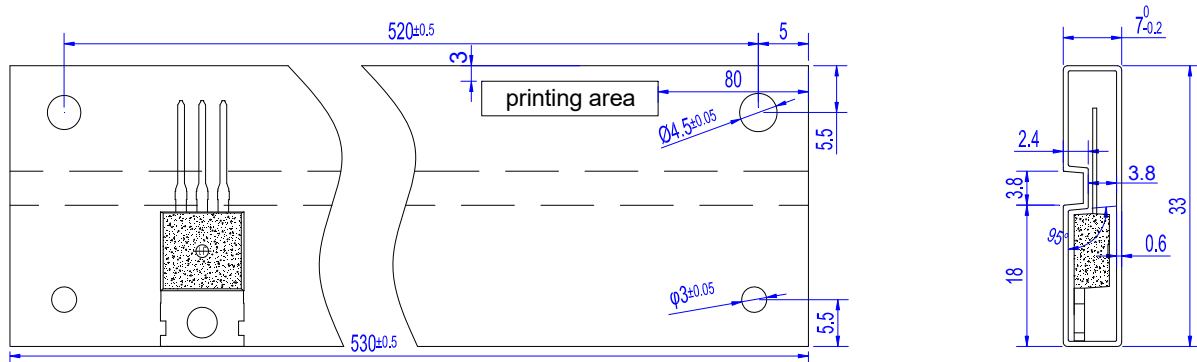
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220A	TUBE	50	1,000	5,000

PACKAGE MECHANICAL DATA



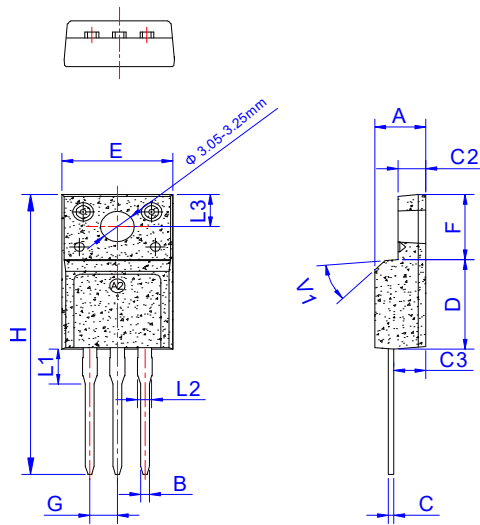
Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	4.40		4.60	0.173		0.181
B	0.70		0.90	0.028		0.035
C	0.45		0.60	0.018		0.024
C2	1.25		1.35	0.049		0.053
C3	2.20		2.60	0.087		0.102
D	8.90		9.90	0.350		0.390
E	9.90		10.3	0.390		0.406
F	6.30		6.90	0.248		0.272
G	2.40		2.70	0.094		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



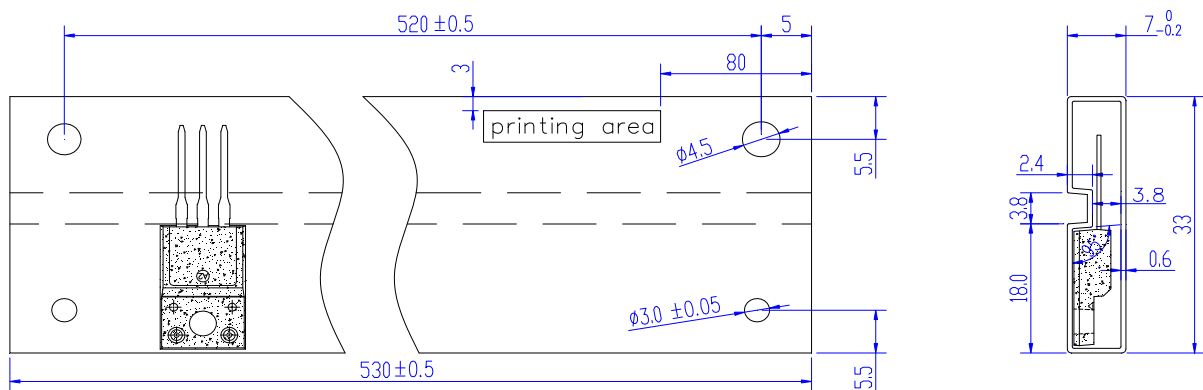
PACKAGE	OUTLINE	TUBE (PCS)	INNER BOX (PCS)	PER CARTON
TO-220C	TUBE	50	1,000	5,000

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




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





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