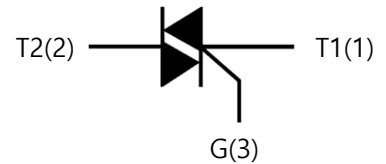
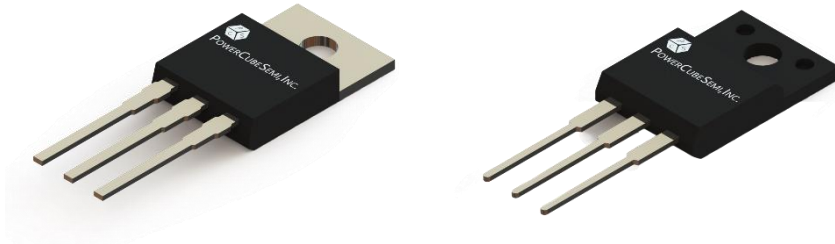


JST24 Series

600/800/1200/1600V-Level 25A TRIACs

Description

With high ability to withstand the shock loading of large current, JST24 series TRIACs provide high dv/dt rate with strong resistance to electromagnetic interface. With high commutation performances, 3 quadrants products especially recommended for use on inductive load. From all three terminals to external heatsink, JST24A provides a rated insulation voltage of 2,500 VRMS, and JST24F provides a rated insulation voltage of 2,000 VRMS, complying with UL standards.



PKG type : TO-220A, TO-220B, TO-220C, TO-220F, TO-262, TO-3P



Absolute Maximum Ratings

Symbol	Parameter	Value	Unit	
V_{DRM}	Repetitive Peak Off-State Voltage ($T_J=25^{\circ}\text{C}$)	600/800/1200/1600	V	
V_{RRM}	Repetitive Peak Reverse Voltage ($T_J=25^{\circ}\text{C}$)	600/800/1200/1600	A	
$I_{T(RMS)}$	RMS On-State Current	TO-220A / TO-220F ($T_C=70^{\circ}\text{C}$)	25	A
		TO-220C / TO-220B ($T_C=85^{\circ}\text{C}$)		
		TO-262 ($T_C=50^{\circ}\text{C}$)		
		TO-3P ($T_C=95^{\circ}\text{C}$)		
I_{TSM}	Non-Repetitive Surge Peak On-State Current (full cycle, $f=50\text{Hz}$)	250	A	
I^2t	I^2t Value for Fusing ($t_p=10\text{ms}$)	340	A^2s	
di/dt	Critical Rate of Rise of On-State Current ($I_G=2 \times I_{GT}$)	50	$\text{A}/\mu\text{s}$	
T_J	Operating Junction Temperature Range	-40 to 125	$^{\circ}\text{C}$	
T_{stg}	Storage Junction Temperature Range	-40 to 150	$^{\circ}\text{C}$	
I_{GM}	Peak Gate Current	4	A	
$P_{G(AV)}$	Average Gate Power Dissipation	1	W	
P_{GM}	Peak Gate Power	10	W	

Electrical Characteristics $T_J=25^\circ\text{C}$ unless otherwise specified

$V_{\text{DRM}} / V_{\text{RRM}} : 600 / 800\text{V}$

Symbol	Test Condition	Quadrant		Numerical		Unit
				BW	CW	
I_{GT}	$V_{\text{D}}=12\text{V}, R_{\text{L}}=33\Omega$	I · II · III	MAX	50	35	mA
V_{GT}		I · II · III	MAX	1.3		V
V_{GD}	$V_{\text{D}}=V_{\text{DRM}}, T_J=125^\circ\text{C}, R_{\text{L}}=3.3\text{k}\Omega$	I · II · III	MIN	0.2		V
I_{L}	$I_{\text{G}}=1.2I_{\text{GT}}$	I · III	MAX	80	70	mA
		II		100	80	
I_{H}	$I_{\text{T}}=100\text{mA}$		MAX	75	50	mA
dV/dt	$V_{\text{D}}=2/3V_{\text{DRM}}$ Gate Open $T_J=125^\circ\text{C}$		MIN	1000	500	V/ μs

$V_{\text{DRM}} / V_{\text{RRM}} : 1200 / 1600\text{V}$

Symbol	Test Condition	Quadrant		Numerical		Unit
				BW	CW	
I_{GT}	$V_{\text{D}}=12\text{V}, R_{\text{L}}=33\Omega$	I · II · III	MAX	50	35	mA
V_{GT}		ALL	MAX	1.5		V
V_{GD}	$V_{\text{D}}=V_{\text{DRM}}, T_J=125^\circ\text{C}, R_{\text{L}}=3.3\text{k}\Omega$	ALL	MIN	0.2		V
I_{L}	$I_{\text{G}}=1.2I_{\text{GT}}$	I · III	MAX	90	70	mA
		II		100	80	
I_{H}	$I_{\text{T}}=100\text{mA}$		MAX	80	60	mA
dV/dt	$V_{\text{D}}=2/3V_{\text{DRM}}$ Gate Open $T_J=125^\circ\text{C}$		MIN	1500	1000	V/ μs

$V_{\text{DRM}} / V_{\text{RRM}} : 600 / 800\text{V}$

Symbol	Test Condition	Quadrant		JST24-600/800V		Unit
				B	C	
I_{GT}	$V_{\text{D}}=12\text{V}, R_{\text{L}}=33\Omega$	I · II · III	MAX	50	25	mA
		IV		70	50	
V_{GT}		ALL	MAX	1.3		V
V_{GD}	$V_{\text{D}}=V_{\text{DRM}}, T_J=125^\circ\text{C}, R_{\text{L}}=3.3\text{k}\Omega$	ALL	MIN	0.2		V
I_{L}	$I_{\text{G}}=1.2I_{\text{GT}}$	I · III · IV	MAX	80	70	mA
		II		100	90	
I_{H}	$I_{\text{T}}=100\text{mA}$		MAX	75	60	mA
dV/dt	$V_{\text{D}}=2/3V_{\text{DRM}}$ Gate Open $T_J=125^\circ\text{C}$		MIN	500	200	V/ μs

Static Characteristics

Symbol	Parameter		Value	Unit
V_{TM}	ITM=35A, tp=380us	$T_J=25^{\circ}C$	1.5	V
V_{TO}	Threshold Voltage	$T_J=125^{\circ}C$	0.95	V
R_d	Dynamic Resistance	$T_J=125^{\circ}C$	13	m Ω
I_{DRM}	$V_D=V_{DRM}, V_R=V_{RRM}$	$T_J=25^{\circ}C$	5	μA
I_{RRM}		$T_J=125^{\circ}C$	3	mA

Thermal Resistances

Symbol	Parameter		Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case	TO-220A	1.5	$^{\circ}C/W$
		TO-220C / TO-220B	1.1	
		TO-220F	1.7	
		TO-262	2.1	
		TO-3P	0.67	

Package Marking and Ordering Information

Device Marking	V_{DRM} / V_{RRM} [V]	IGT(Ma)	Package	Packing Method	Quantity
		I · II · III			
JST24*-600(800/1200/1600)BW	600/800/1200/1600	50	TO-220A TO-220F TO-220B TO-220C TO-262	Tube	50
JST24*-600(800/1200/1600)CW		35			
JST24Z-600(800/1200/1600)BW		50			
JST24Z-600(800/1200/1600)CW		35			

Device Marking	V_{DRM} / V_{RRM} [V]	IGT(Ma)		Package	Packing Method	Quantity
		I · II · III	IV			
JST24*-600(800)B	600/800	50	70	TO-220A TO-220F TO-220B TO-220C TO-262	Tube	50
JST24*-600(800)C		25	50			
JST24Z-600(800)B		50	70			
JST24Z-600(800)C		25	50			

* Refers to a Series of Packages

Typical Characteristics

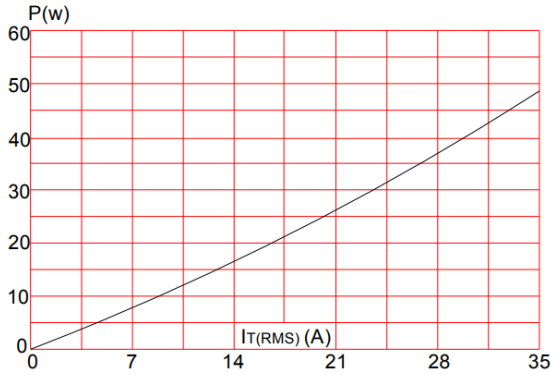


Figure 1. Maximum Power Dissipation vs. RMS On-State Current

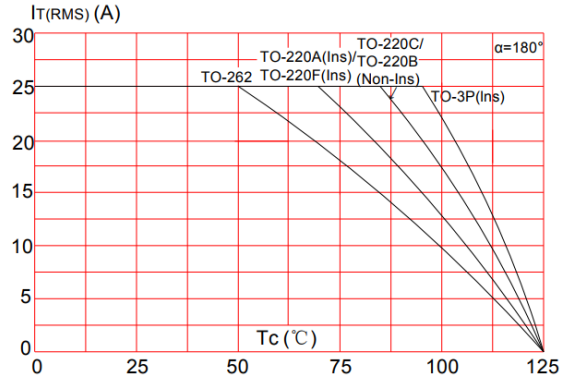


Figure 2. RMS On-State Current vs. Case Temperature

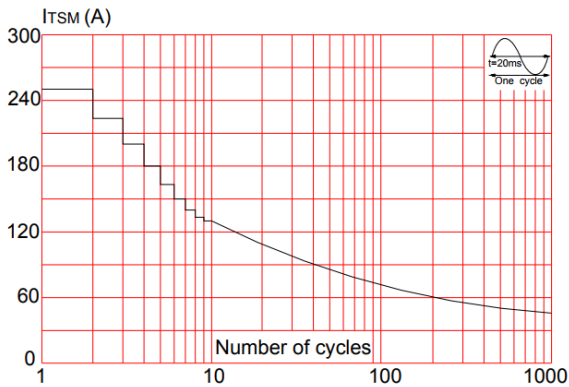


Figure 3. Surge Peak On-State Current vs. Number of Cycles

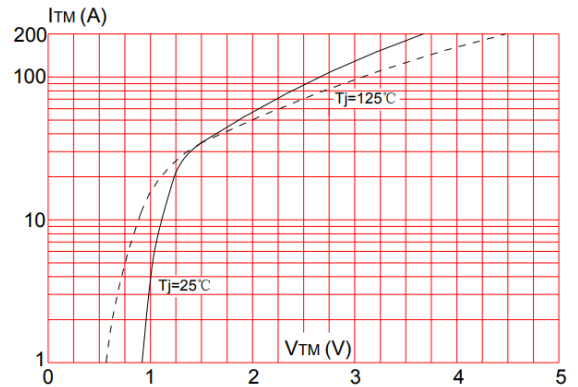


Figure 4. On-State Characteristics (Maximum Values)

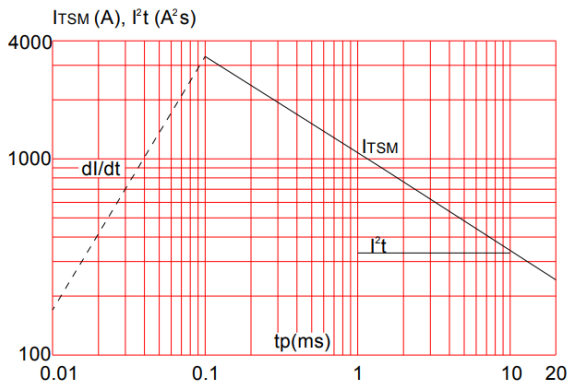


Figure 5. Non-Repetitive Surge Peak On-State Current for a Sinusoidal Pulse with width $t_p < 20ms$ and Corresponding Value of I^2T ($di/dt < 50A/\mu s$)

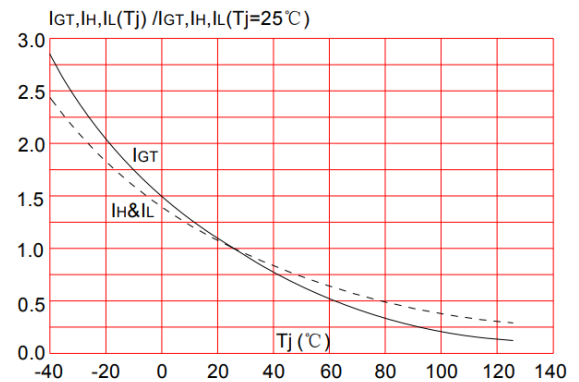


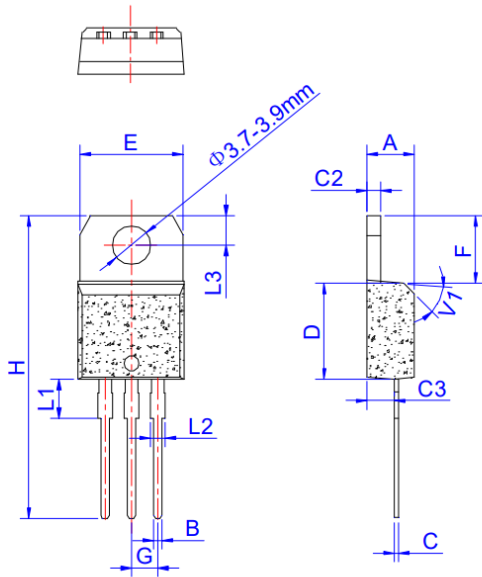
Figure 6. Relative Variations of Gate Trigger Current, Holding Current and Latching Current vs. Junction Temperature



Package Outline

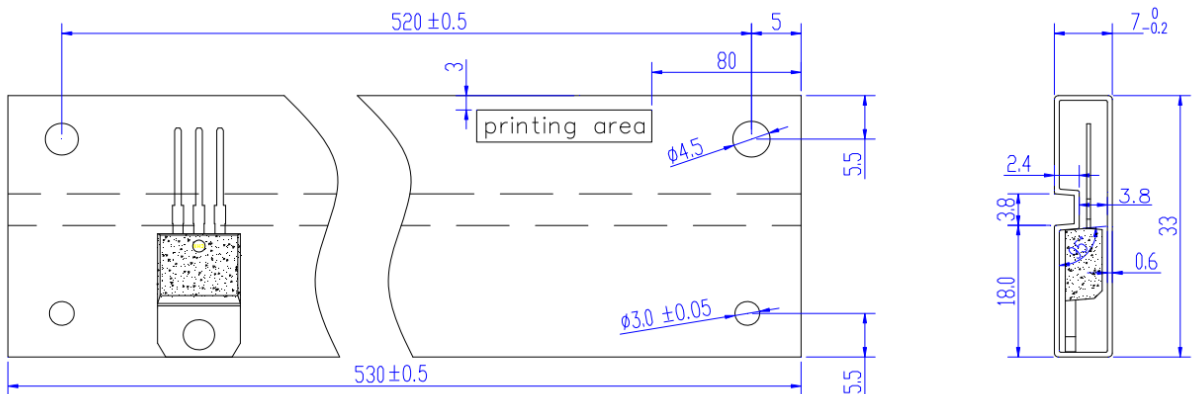
[TO-220A]

Unit : mm



SYMBOL	DIMENSIONS			NOTES
	MIN	NOM	MAX	
A	4.40		4.60	
B	0.61		0.88	
C	0.46		0.70	
C2	1.21		1.32	
C3	2.40		2.72	
D	8.60		9.70	
E	9.80		10.4	
F	6.25		6.85	
G	2.40		2.70	
H	28.0		29.8	
L1	3.45		4.5	
L2	1.14		1.70	
L3	2.65		2.95	
V1		45°		

Delivery Mode

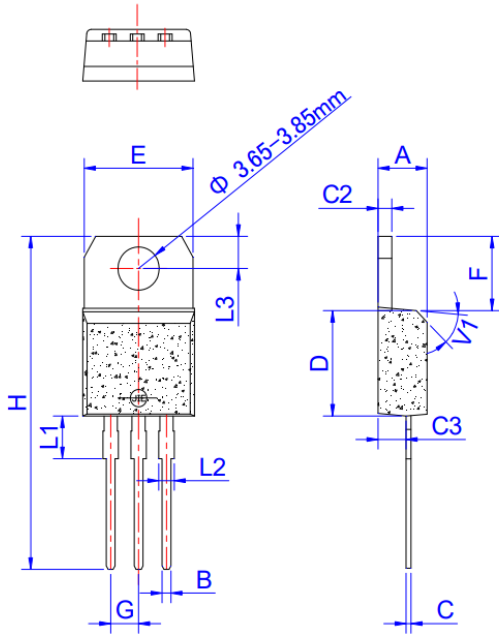


Package	Outline	Tube	Inner Box	Per Carton
TO-220A	TUBE	50	1,000	5,000

Package Outline

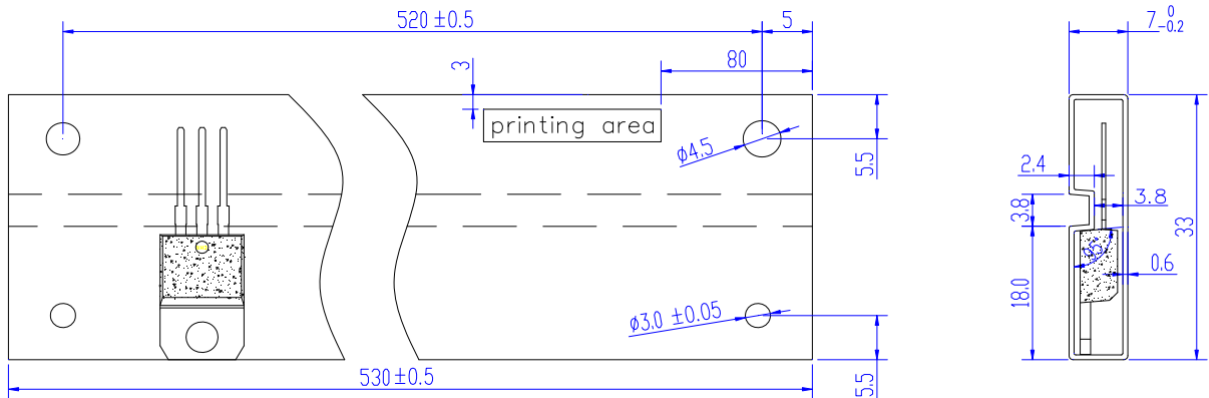
[TO-220B]

Unit : mm



SYMBOL	DIMENSIONS			NOTES
	MIN	NOM	MAX	
A	4.40		4.60	
B	0.61		0.88	
C	0.46		0.70	
C2	1.21		1.32	
C3	2.40		2.72	
D	8.60		9.70	
E	9.60		10.40	
F	6.20		6.60	
G	2.40		2.70	
H	28.0		29.8	
L1		3.75		
L2	1.14		1.70	
L3	2.65		2.95	
V1		45°		

Delivery Mode

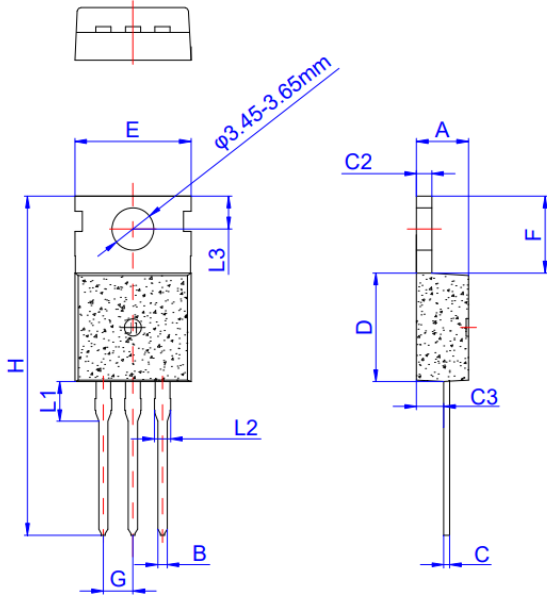


Package	Outline	Tube	Inner Box	Per Carton
TO-220B	TUBE	50	1,000	5,000

Package Outline

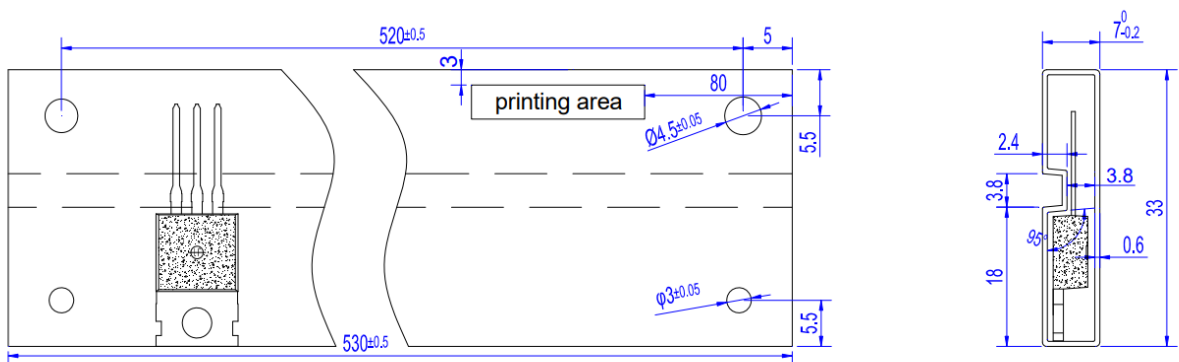
[TO-220C]

Unit : mm



SYMBOL	DIMENSIONS			NOTES
	MIN	NOM	MAX	
A	4.40		4.60	
B	0.70		0.90	
C	0.45		0.60	
C2	1.25		1.35	
C3	2.20		2.60	
D	8.90		9.90	
E	9.90		10.3	
F	6.30		6.90	
G	2.40		2.70	
H	28.0		29.8	
L1	2.70		3.30	
L2	1.14		1.70	
L3	2.65		2.95	

Delivery Mode



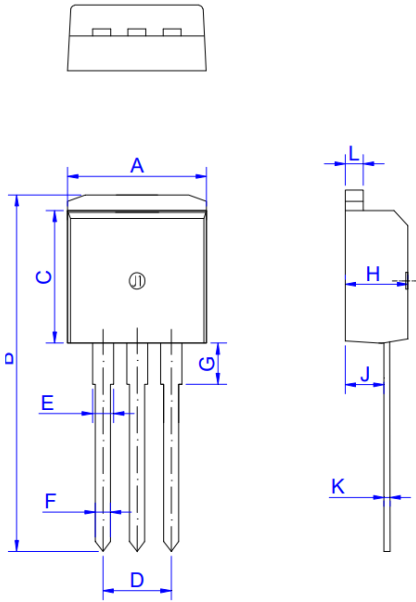
Package	Outline	Tube	Inner Box	Per Carton
TO-220C	TUBE	50	1,000	5,000



Package Outline

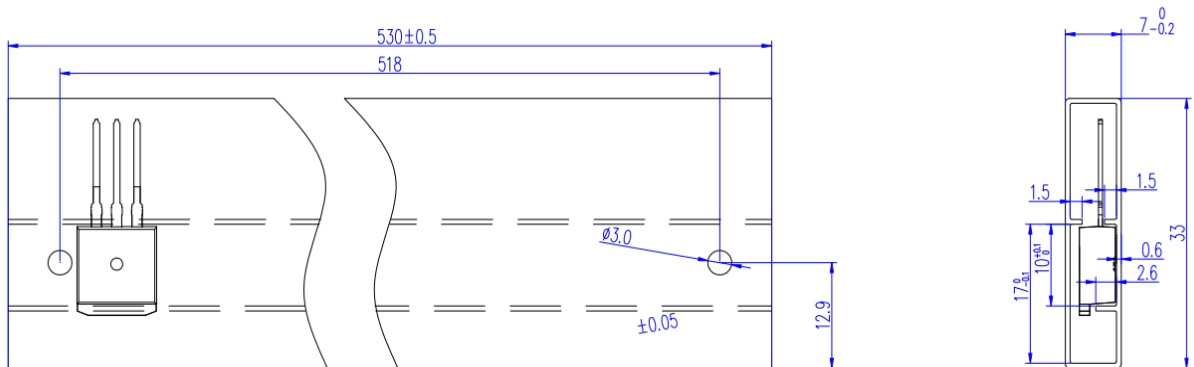
[TO-262]

Unit : mm



SYMBOL	DIMENSIONS			NOTES
	MIN	NOM	MAX	
A	9.95		10.20	
B	23.85		24.05	
C	9.40		9.60	
D	4.95		5.25	
E	1.35		1.40	
F	0.80		0.85	
G	2.70		3.40	
H	4.45		4.55	
J	2.20		2.60	
K	0.48		0.52	
L	1.30		1.35	

Delivery Mode

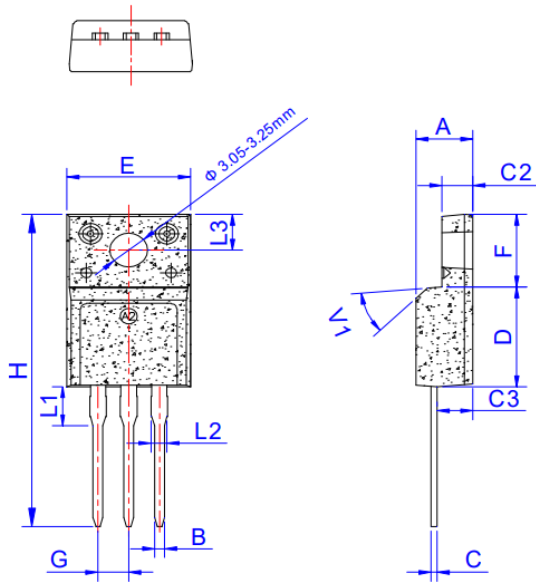


Package	Outline	Tube	Inner Box	Per Carton
TO-262	TUBE	50	1,000	5,000

Package Outline

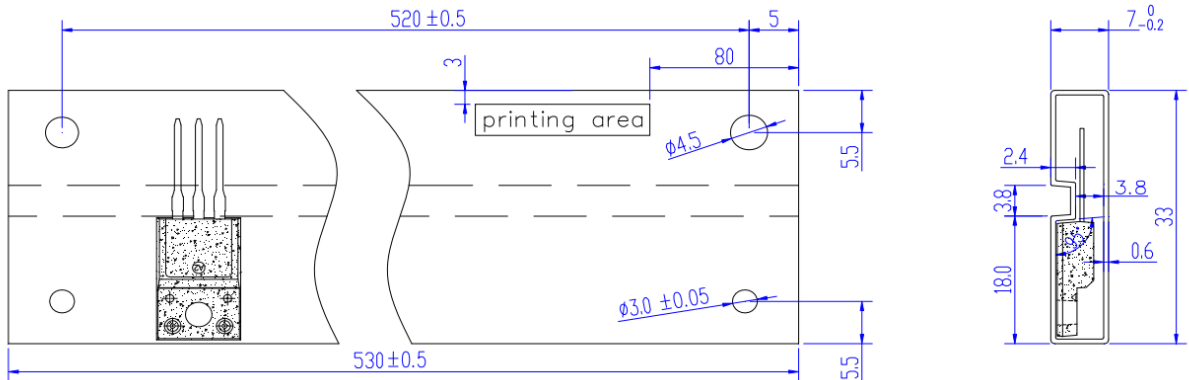
[TO-220F]

Unit : mm



SYMBOL	DIMENSIONS			NOTES
	MIN	NOM	MAX	
A	4.50		4.90	
B	0.74	0.80	0.83	
C	0.47		0.65	
C2	2.45		2.75	
C3	2.60		3.00	
D	8.8		9.30	
E	9.80		10.4	
F	6.40		6.80	
G	2.40		2.70	
H	28.0		29.8	
L1	3.20		3.80	
L2	1.14		1.70	
L3	3.20		3.60	
V1		45°		

Delivery Mode



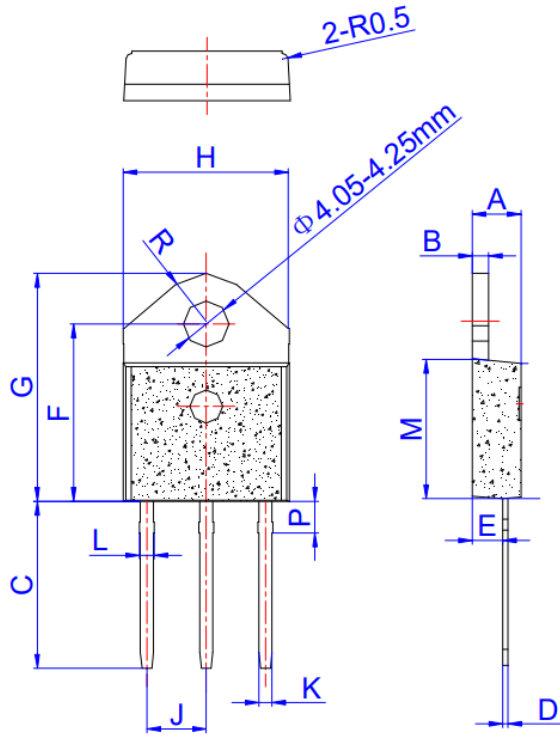
Package	Outline	Tube	Inner Box	Per Carton
TO-220F	TUBE	50	1,000	5,000



Package Outline

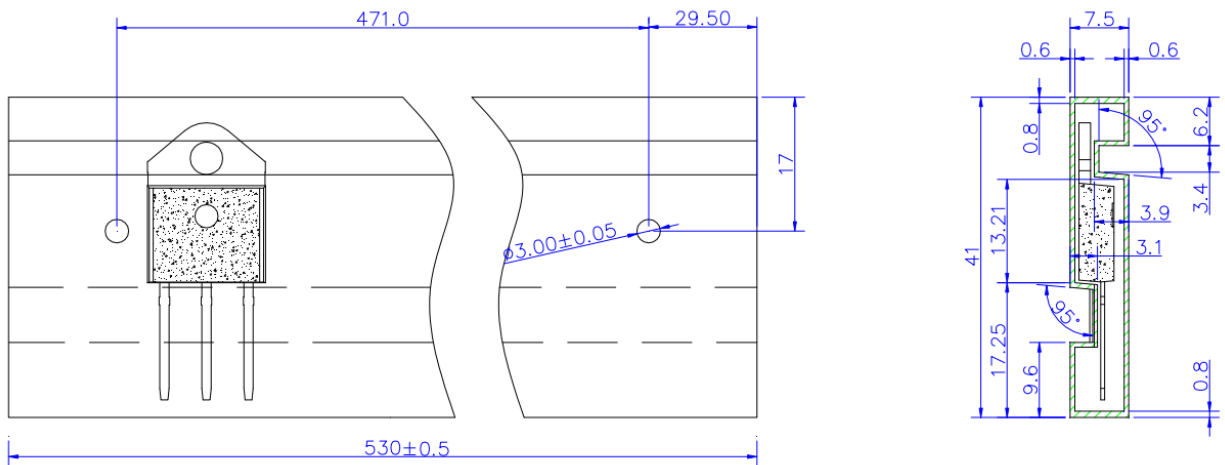
[TO-3P]

Unit : mm



SYMBOL	DIMENSIONS			NOTES
	MIN	NOM	MAX	
A	4.40		4.60	
B	1.45		1.55	
C	14.35		15.60	
D	0.50		0.70	
E	2.70		2.90	
F	15.80		16.50	
G	20.40		21.10	
H	15.10		15.50	
J	5.40		5.65	
K	1.10		1.40	
L	1.25		1.45	
M	12.37		12.77	
P	2.80		3.00	
R		4.35		

Delivery Mode



Package	Outline	Tube	Inner Box	Per Carton
TO-3P	TUBE	30	450	2,250