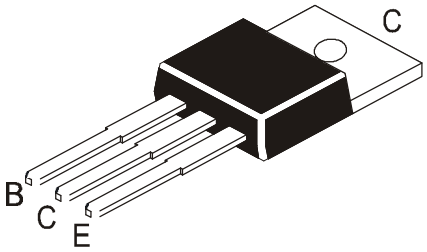
Transys Electronics LIMITED

PLASTIC POWER TRANSISTORS



TIP120 | TIP125
TIP121 | TIP126
TIP122 | TIP127
NPN | PNP

TO-220
Plastic Package

High Power Switching, Hammer Drive, Pulse Motor Drive and Inductive Load Drive Applications

ABSOLUTE MAXIMUM RATINGS

DESCRIPTION		TIP120/125	TIP121/126	TIP122/127	UNIT
Collector Emitter Voltage	V_{CEO}	60	80	100	V
Collector Base Voltage	V_{CBO}	60	80	100	V
Emitter Base Voltage	V_{EBO}	5			V
Collector Current Continuous	I_C	5			A
Collector Current Peak	I_{CM}	8			A
Base Current	I_B	120			mA
Power Dissipation upto T_c=25ºC Derate above 25ºC	P_D	65 0.52			W W/ºC
Power Dissipation upto T_a=25ºC Derate above 25ºC	P_D	2 16			W mW/ºC
Unclamped Inductive Load Energy	*E	50			mJ
Operating And Storage Junction Temperature	T_j, T_{stg}	- 65 to +150			ºC

*** I_C=1A, L=100mH, P.R.F.=10Hz, Vcc=20V, R_{BE}=100W**

THERMAL RESISTANCE

Junction to Case	$R_{th\ (j\text{-}c)}$	1.92	ºC/W
Junction to Ambient in free air	$R_{th\ (j\text{-}a)}$	62.5	ºC/W

ELECTRICAL CHARACTERISTICS (T_C=25ºC unless specified otherwise)

DESCRIPTION	SYMBOL	TEST CONDITION	TIP120/125		TIP121/126		TIP122/127		UNIT
			MIN	MAX	MIN	MAX	MIN	MAX	
Collector Emitter (sus) Voltage	*$V_{CEO(sus)}$	I_C=100mA, I_B=0	60		80		100		V
Collector Cut Off Current	I_{CEO}	V_{CE}=50V, I_B=0 V_{CE}=40V, I_B=0 V_{CE}=30V, I_B=0		 0.5		 0.5		0.5	mA mA mA
Collector Cut Off Current	I_{CBO}	V_{CB}=100V, I_E=0 V_{CB}=80V, I_E=0 V_{CB}=60V, I_E=0		 0.2		 0.2		0.2	mA mA mA
Emitter Cut Off Current	I_{EBO}	V_{EB}=5V, I_C=0		2.0		2.0		2.0	mA
DC Current Gain	*h_{FE}	I_C=0.5A,V_{CE}=3V I_C=3A, V_{CE}=3V	1000 1000		1000 1000		1000 1000		
Collector Emitter Saturation Voltage	*$V_{CE\ (sat)}$	I_C=3A, I_B=12mA I_C=5A, I_B=20mA		2.0 4.0		2.0 4.0		2.0 4.0	V V
Base Emitter On Voltage	*$V_{BE\ (on)}$	I_C=3A,V_{CE}=3V		2.5		2.5		2.5	V

***Pulse Test : Pulse width ≤300ms, Duty Cycle ≤2%**

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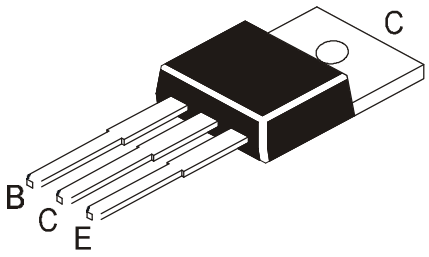

TO-220
Plastic Package

ELECTRICAL CHARACTERISTICS (T_C=25ºC unless specified otherwise)

DYNAMIC CHARACTERISTIC

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Small Signal Current Gain	h_{fe}	I_C=3A,V_{CE}=4V, f=1MHz	4			
Output Capacitance	C_{ob}	V_{CB}=10V, I_E=0, f=0.1MHz				
		TIP125,126,127			300	pF
		TIP120,121,122			200	pF

SWITCHING CHARACTERISTICS

DESCRIPTION	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
Turn on time	t_{on}	I_C=3A, R_L=10Ω I_{B1}=I_{B2}=12mA		0.4		µs
Turn off time	t_{off}	$V_{EB\ (off)}$=5V		1.2		µs

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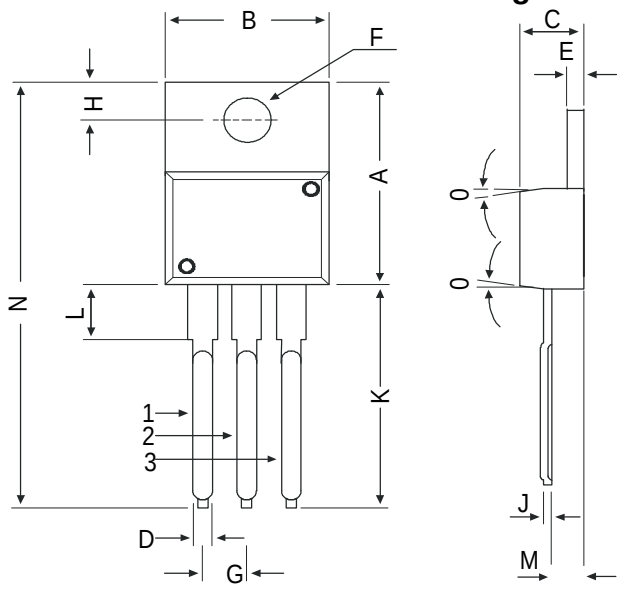
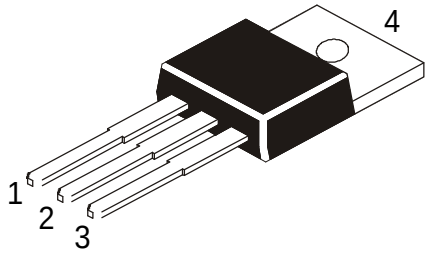


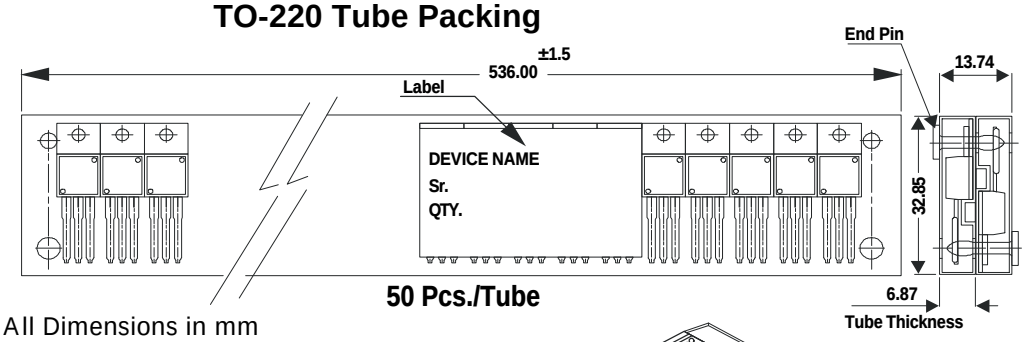
DIM	MIN	MAX
A	14.42	16.51
B	9.63	10.67
C	3.56	4.83
D	—	0.90
E	1.15	1.40
F	3.75	3.88
G	2.29	2.79
H	2.54	3.43
J	—	0.56
K	12.70	14.73
L	2.80	4.07
M	2.03	2.92
N	—	31.24
O	7 DEG	

All diminsions in mm.



Pin Configuration
1. Base
2. Collector
3. Emitter
4. Collector

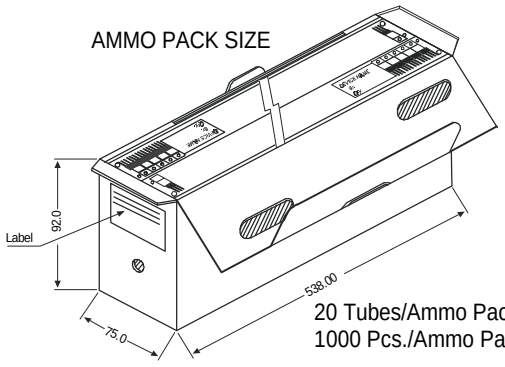
TO-220 Tube Packing



50 Pcs./Tube

All Dimensions in mm

AMMO PACK SIZE



20 Tubes/Ammo Pack
1000 Pcs./Ammo Pack

Packing Detail

PACKAGE	STANDARD PACK		INNER CARTON BOX		OUTER CARTON BOX		
	Details	Net Weight/Qty	Size	Qty	Size	Qty	Gr Wt
TO-220 /FP	200 pcs/polybag	396 gm/200 pcs	3" x 7.5" x 7.5"	1.0K	17" x 15" x 13.5"	16.0K	36 kgs
	50 pcs/tube	120 gm/50 pcs	3.5" x 3.7" x 21.5"	1.0K	19" x 19" x 19"	10.0K	29 kgs