

## TO-220-3L Plastic-Encapsulate Transistors

### KTD1351 TRANSISTOR (NPN)

#### FEATURES

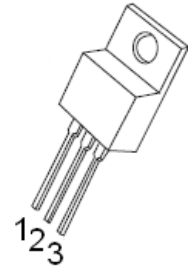
- Low Saturations Voltage

#### APPLICATIONS

- General Purpose Applications

TO-220-3L

1. BASE
2. COLLECTOR
3. EMITTER



#### MAXIMUM RATINGS ( $T_a=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Value	Unit
$V_{\text{CBO}}$	Collector-Base Voltage	60	V
$V_{\text{CEO}}$	Collector-Emitter Voltage	60	V
$V_{\text{EBO}}$	Emitter-Base Voltage	7	V
$I_{\text{C}}$	Collector Current	3	A
$P_{\text{C}}$	Collector Power Dissipation	2	W
$R_{\theta\text{JA}}$	Thermal Resistance From Junction To Ambient	63	$^{\circ}\text{C}/\text{W}$
$T_{\text{j}}$	Junction Temperature	150	$^{\circ}\text{C}$
$T_{\text{stg}}$	Storage Temperature	-55~+150	$^{\circ}\text{C}$

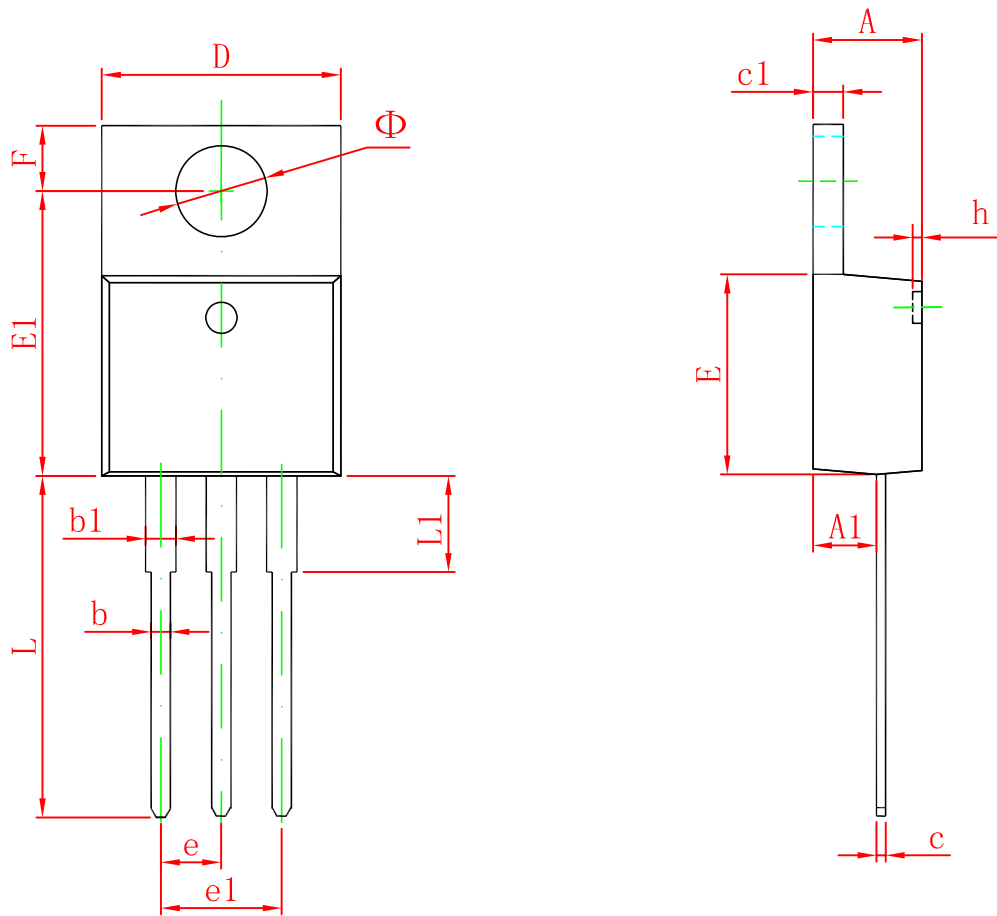
#### ELECTRICAL CHARACTERISTICS ( $T_a=25^{\circ}\text{C}$ unless otherwise specified)

Parameter	Symbol	Test conditions	Min	Typ	Max	Unit
Collector-base breakdown voltage	$V_{(\text{BR})\text{CBO}}$	$I_{\text{C}}=100\mu\text{A}, I_{\text{E}}=0$	60			V
Collector-emitter breakdown voltage	$V_{(\text{BR})\text{CEO}}$	$I_{\text{C}}=50\text{mA}, I_{\text{B}}=0$	60			V
Emitter-base breakdown voltage	$V_{(\text{BR})\text{EBO}}$	$I_{\text{E}}=100\mu\text{A}, I_{\text{C}}=0$	7			V
Collector cut-off current	$I_{\text{CBO}}$	$V_{\text{CB}}=60\text{V}, I_{\text{E}}=0$			0.1	mA
Emitter cut-off current	$I_{\text{EBO}}$	$V_{\text{EB}}=7\text{V}, I_{\text{C}}=0$			0.1	mA
DC current gain	$h_{\text{FE}}$	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=0.5\text{A}$	60		300	
Collector-emitter saturation voltage	$V_{\text{CE}(\text{sat})}$	$I_{\text{C}}=2\text{A}, I_{\text{B}}=0.2\text{A}$			1	V
Base-emitter voltage	$V_{\text{BE}}$	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=0.5\text{A}$			1	V
Collector output capacitance	$C_{\text{ob}}$	$V_{\text{CB}}=10\text{V}, I_{\text{E}}=0, f=1\text{MHz}$		35		pF
Transition frequency	$f_{\text{T}}$	$V_{\text{CE}}=5\text{V}, I_{\text{C}}=0.5\text{A}$		3		MHz

#### CLASSIFICATION OF $h_{\text{FE}}$

RANK	O	Y	GR
RANGE	60-120	100-200	150-300

# TO-220-3L Package Outline Dimensions



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	4.470	4.670	0.176	0.184
A1	2.520	2.820	0.099	0.111
b	0.710	0.910	0.028	0.036
b1	1.170	1.370	0.046	0.054
c	0.310	0.530	0.012	0.021
c1	1.170	1.370	0.046	0.054
D	10.010	10.310	0.394	0.406
E	8.500	8.900	0.335	0.350
E1	12.060	12.460	0.475	0.491
e	2.540 TYP		0.100 TYP	
e1	4.980	5.180	0.196	0.204
F	2.590	2.890	0.102	0.114
h	0.000	0.300	0.000	0.012
L	13.400	13.800	0.528	0.543
L1	3.560	3.960	0.140	0.156
$\Phi$	3.735	3.935	0.147	0.155