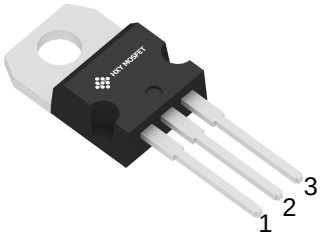
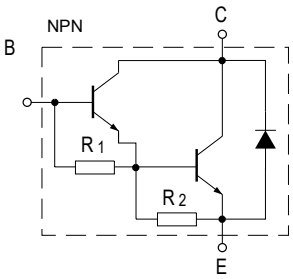
TIP142T
NPN-Darlington Transistors

Features

- Monolithic Darlington configuration
- Integrated antiparallel collector-emitter diode



TO-220S
1.BASE
2.COLLECTOR
3.EMITTER



R_1 typ. =5 KΩ R_2 typ. =210Ω

Maximum Ratings (Ta=25℃unless otherwise noted)

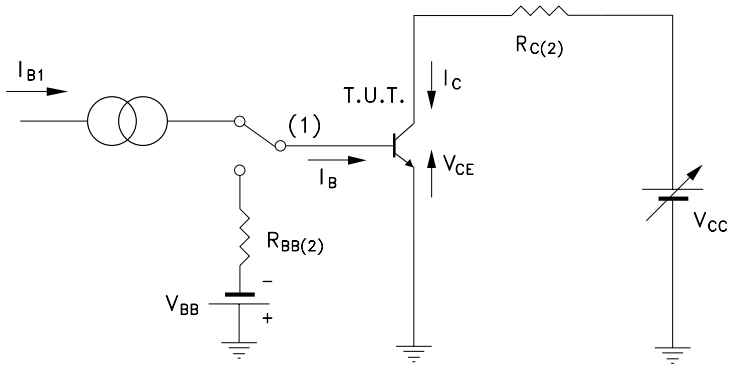
Symbol	Parameter	Value	Unit
V_{CBO}	Collector-base voltage (I_E = 0)	100	V
V_{CEO}	Collector-emitter voltage (I_B = 0)	100	V
V_{EBO}	Emitter-base voltage (I_C = 0)	5	V
I_C	Collector current	10	A
I_{CM}	Collector peak current	20	A
I_B	Base current	0.5	A
P_{TOT}	Total dissipation at T_{case} = 25 °C	90	W
T_{STG}	Storage temperature	-65 to 150	°C
T_J	Max. operating junction temperature	150	°C

Electrical Characteristics (Ta=25℃unless otherwise specified)

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Unit
I_{CBO}	Collector cut-off current (I_E = 0)	V_{CB} = 100 V			1	mA
I_{CEO}	Collector cut-off current (I_B = 0)	V_{CE} = 50 V			2	mA
I_{EBO}	Emitter cut-off current (I_C = 0)	V_{EB} = 5 V			2	mA
$V_{CEO(sus)}$(1)	Collector-emitter sustaining voltage (I_B = 0)	I_C = 30 mA	100			V
$V_{CE(sat)}$(1)	Collector-emitter saturation voltage	I_C = 5 A I_B = 10 mA I_C = 10 A I_B = 40 mA			2 3	V V
$V_{BE(on)}$(1)	Base-emitter on voltage	I_C = 10 A V_{CE} = 4 V			3	V
h_{FE}(1)	DC current gain	I_C = 5 A V_{CE} = 4 V I_C = 10 A V_{CE} = 4 V	1000 500			
t_{on} t_{off}	Resistive load Turn-on time Turn-off time	I_C = 10 A R_L = 3 Ω I_{B1} = -I_{B2} = 40 mA		0.9 4		µs µs

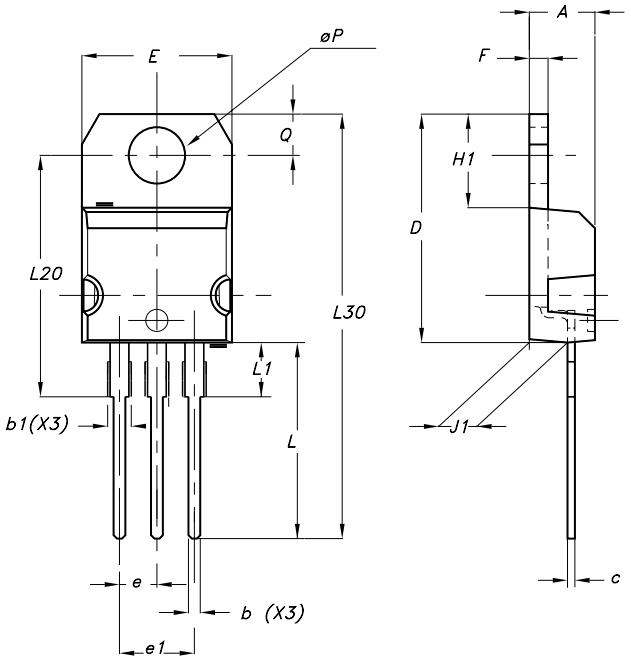
1. Pulse test: pulse duration ≤ 300 µs, duty cycle ≤ 2 %.

Resistive load switching test circuit



1. Fast electronic switch
2. Non-inductive resistor

Package Information
TO-220S



DIM.	mm.			inch		
	MIN.	TYP	MAX.	MIN.	TYP.	MAX.
A	4.40		4.60	0.173		0.181
b	0.61		0.88	0.024		0.034
b1	1.15		1.70	0.045		0.066
c	0.49		0.70	0.019		0.027
D	15.25		15.75	0.60		0.620
E	10		10.40	0.393		0.409
e	2.40		2.70	0.094		0.106
e1	4.95		5.15	0.194		0.202
F	1.23		1.32	0.048		0.052
H1	6.20		6.60	0.244		0.256
J1	2.40		2.72	0.094		0.107
L	13		14	0.511		0.551
L1	3.50		3.93	0.137		0.154
L20		16.40			0.645	
L30		28.90			1.137	
øP	3.75		3.85	0.147		0.151
Q	2.65		2.95	0.104		0.116

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