POWERLINE NPN

Device Type	Case Outline	Maximum Continuous Collector Current	Maximum Peak Collector Current	Maximum Continuous Base Current	Collector Emitter Voltage $T_C = 125°C$ Note 1	Collector Emitter Sustaining Voltage $T_C = 125°C$ Note 2	Maximum Junction Temperature	Total Power Dissipation $T_C = 2$
		I_C Continuous A	I_C Peak A	I_B Continuous A	V_{CEX} V	$V_{CER(sus)}$ V	T_j °C	P_T W
TCD30/U-800	TO-3/SO28	50	70	10	800	500	150	125/2(
TCD30/U-1000	TO-3/SO28	12	20	10	1000	850	150	125/2(
*TC1-800	TO39	1	2	0.5	800	700	150	2.0
TC15/U-800	TO-3/SO28	40	50	10	800	500	200	175/2:
TC15/U-1000	TO-3/SO28	20	30	10	1000	850	200	175/2:
*TC35/40U-250	MOD TO-3/SO28	50	70	10	250	200	175	150/2:
*TC35/40U-300	MOD TO-3/SO28	50	70	10	300	250	175	150/2:
*TC35/40U-400	MOD TO-3/SO28	50	70	10	400	300	175	150/2:
TS/DT36-300	TS/E	200/400	300/500	25/50	300	250	150	500/1:
TS/DT34-500	TS/E	150/300	200/400	25/50	500	400	150	500/1:
TS/DT32-1050	TS/E	100/125	150/150	25/50	1050	850	150	500/1:
DT46-1100	E	100	150	25	1100	900	150	170(
DT46-1200	E	100	150	25	1200	1000	150	170(
DT47-1000	E	150	175	35	1000	800	150	170(
DT47-1050	E	150	175	35	1050	850	150	170(
DT48-850	E	150	175	25	850	700	150	170(
DT48-950	E	150	175	25	950	750	150	170(
DT51-700	E	200	300	50	700	600	150	170(
DT51-800	E	200	300	50	800	650	150	170(
DT52-650	E	200	300	50	650	500	150	170(
DT52-750	E	200	300	50	750	550	150	1700
DT62-400	E	350	400	50	400	350	150	170(
DT62-500	E	350	400	50	500	450	150	1700
DT62-600	E	350	400	50	600	500	150	170(
DT63-300	E	400	450	70	300	300	150	170(
DT63-400	E	400	450	70	400	350	150	170(
DT63-500	E	400	450	70	500	400	150	170(
DT74-250	E	600	800	100	250	200	175	200(
DT74-300	E	600	800	100	300	250	175	200(
DT74-350	E	600	800	100	350	300	175	200(
DT/TF100-800	TF/R	200	300	100	800	750	150	1500/2
DT/TF100-900	TF/R	200	300	100	900	800	150	1500/2
DT/TF100-900	TF/R	200	300	100	1000	850	150	1500/2
DT/TF100-1000	TF/R	200	300	100	1100	900	150	1500/2
DT/TF100-1100	TF/R	200	300	100	1200	1000	150	1500/2
DT/TF200-700	TF/R	300	450	100	700	600	150	1500/2
DT/TF200-800	TF/R	300	450	100	800	650	150	1500/2
DT/TF200-900	TF/R	300	450	100	900	700	150	1500/2
DT/TF400-300	TF/R	500	600	150	300	300	150	1500/2
DT/TF400-400	TF/R	500	600	150	400	350	150	1500/2
DT/TF400-500	TF/R	500	600	150	500	400	150	1500/2
DT500-800	S	400	800	125	800	750	175	3750
DT500-900	S	400	800	125	900	800	175	3750
DT500-1000	S	400	800	125	1000	850	175	375(
DT600-450	S	750	1000	125	450	400	175	37
DT600-500	S	750	1000	125	500	450	175	3
DT600-550	S	750	1000	125	550	500	175	3
DT800-300	S	1000	1200	150	300	200	175	3
DT800-350	S	1000	1200	150	350	250	175	3
DT800-450	S	1000	1200	150	400	300	175	

Notes:
1. $V_{EB} = -1.5V$
2. $V_{CEX(sus)}$ for TC35/TC40U. V_{CER} measured with $T_{case} = 25°C$, $I_C = 200mA$, $R_{BE} = 100\Omega$ (10Ω for TF types).
3. DT34 to 74 and DT500 to 800 values are for collector side cooling/double side cooling.
   For TS/DT32 to 36 values are for TS/DT collector side cooling /DT double side cooling.
4. For resistive switching $I_{B1} = I_{B2} = (I_{C(1)}/h_{FE}) \times 1.5$.

* The following devices are available to B.S./Mil 570: TC1, TC35, DT62 (special housing), DT600 and DT200 ('A' capsule advanced information).

† Resistive switching —25°C to 85°C.

	DC Forward Current Gain T_C = 125°C			Collector-Emitter Saturation Voltage T_C = 125°C			Resistance Switching T_C = 125°C						Thermal Resistance Junction to Heatsink Surface Note 3
							Maximum Values				Conditions Note 4		
	h_{FE} MIN	I_C A	V_{CE} V	$V_{CE(SAT)}$ V	I_C A	I_B A	t_{on} µs	t_s µs	t_f µs	t_c µs	I_C A	V_{CE} V	$R_{th(J-HS)}$ °C/W
	30	30	5.0	2.0	30	2.0	0.5	2.5	0.5	2.0	40	400	1.0/0.65
	35	6	5.0	2.0	6	0.3	0.6	3.5	1.0	2.5	6	750	1.0/0.65
	8	1	5.0	0.5	0.5	0.1	0.4	3.0	0.7	1.75	1	125	35
	10	20	5.0	1.0	20	3.0	0.5	5.0	0.35	5.0	20	400	1.0
	8	10	5.0	1.0	10	2.0	0.5	5.0	0.35	5.0	10	750	1.0
	8	40	10.0	1.0	40	8.0	0.4	1.5	0.25	1.75	20	200	1.0/0.65
	8	40	10.0	1.0	40	8.0	0.4	1.5	0.25	1.75	20	200	1.0/0.65
	8	40	10.0	1.0	40	8.0	0.4	1.5	0.25	1.75	20	200	1.0/0.65
	8	200	2.0	1.25	200	37.5	1.4	3.5	0.5	0.8	200	200	0.25/0.13/0.075
	8	100	2.0	1.25	100	18.0	1.5	6.0	1.2	1.2	100	300	0.25/0.13/0.075
	7	40	2.0	1.25	40	8.5	1.7	6.5	1.75	1.3	40	400	0.25/0.13/0.075
	9	50	2.0	1.0	50	7.5	1.95	6.5	2.25	2.0	50	300	0.13/0.075
	10	50	2.0	1.0	50	8.4	1.85	6.5	1.8	1.8	50	300	0.13/0.075
	8	80	2.0	1.0	80	15.0	2.5	6.0	2.0	2.0	80	400	0.13/0.075
	6	80	2.0	1.0	80	20.0	2.5	6.0	2.0	2.0	80	400	0.13/0.075
	8	100	2.0	1.0	100	19.0	2.25	6.25	2.0	2.0	100	400	0.13/0.075
	7	100	2.0	1.0	100	21.0	2.75	6.25	2.0	2.0	100	400	0.13/0.075
	8	120	2.0	1.0	120	23.0	2.4	4.5	1.5	1.5	125	300	0.13/0.075
	7	120	2.0	1.0	120	25.0	3.0	4.5	1.6	1.5	125	300	0.13/0.075
	8	150	2.0	1.0	150	28.0	1.85	4.5	1.2	1.2	150	350	0.13/0.075
	7	150	2.0	1.0	150	32.0	2.25	4.5	1.2	1.2	150	350	0.13/0.075
	9	200	2.0	1.25	200	33.0	2.8	4.5	1.3	1.3	200	300	0.13/0.075
	8	200	2.0	1.25	200	38.0	2.25	4.5	1.3	1.3	200	300	0.13/0.075
	7	200	2.0	1.25	200	43.0	2.25	4.5	1.3	1.3	200	300	0.13/0.075
	13	200	2.0	1.25	200	23.0	2.25	4.5	0.8	1.2	200	250	0.13/0.075
	12	200	2.0	1.25	200	25.0	1.65	4.5	0.75	1.0	200	300	0.13/0.075
	11	200	2.0	1.25	200	27.0	1.45	4.5	1.0	1.1	200	300	0.13/0.075
	10	400	2.0	1.5	400	60.0	1.5	3.5	0.5	1.0	400	200	0.13/0.075
	8	400	2.0	1.5	400	75.0	1.5	3.5	0.6	1.1	400	200	0.13/0.075
	7	400	2.0	1.5	400	85.0	1.5	3.5	0.7	1.2	400	200	0.13/0.075
00	10	100	2.0	1.0	100	15.0	1.7	7.5	1.3	1.4	100	400	0.085/0.05
00	9	100	2.0	1.0	100	17.0	1.6	7.5	1.3	1.3	100	400	0.085/0.05
00	8	100	2.0	1.0	100	19.0	1.55	7.5	1.3	1.2	100	400	0.085/0.05
00	7	100	2.0	1.0	100	21.0	1.7	8.0	1.5	1.4	100	400	0.085/0.05
00	5	100	2.0	1.0	100	30.0	1.7	8.0	1.5	1.4	100	400	0.085/0.05
00	9	200	2.0	1.0	200	34.0	2.2	5.5	1.0	1.0	200	400	0.085/0.05
00	8	200	2.0	1.0	200	38.0	2.1	5.25	1.0	1.0	200	400	0.085/0.05
00	7	200	2.0	1.0	200	43.0	2.0	5.0	1.0	1.0	200	400	0.085/0.05
00	11	400	2.0	1.5	400	54.0	2.9	5.5	1.0	1.0	400	300	0.085/0.05
00	10	400	2.0	1.5	400	60.0	2.85	6.0	1.1	1.1	400	300	0.085/0.05
00	8	400	2.0	1.5	400	75.0	2.8	6.0	1.2	1.2	400	300	0.085/0.05
	10	200	2.0	1.5	200	30.0	2.2	9.5	1.3	1.5	200	400	0.07/0.04
	9	200	2.0	1.5	200	34.0	2.1	9.5	1.3	1.5	200	400	0.07/0.04
	7	200	2.0	1.5	200	43.0	2.0	9.5	1.3	1.5	200	400	0.07/0.04
	11	400	2.0	1.5	400	54.0	1.9	7.0	1.0	1.0	400	300	0.07/0.04
	9	400	2.0	1.5	400	67.0	1.8	6.5	1.0	1.0	400	300	0.07/0.04
	7	400	2.0	1.5	400	85.0	1.5	5.0	1.0	1.0	400	300	0.07/0.04
	10	800	2.0	1.5	800	120.0	2.4	7.5	1.4	1.6	800	200	0.07/0.04
	9	800	2.0	1.5	800	130.0	2.2	7.25	1.6	1.8	800	200	0.07/0.04
	7	800	2.0	1.5	800	170.0	2.0	7.0	1.8	2.0	800	200	0.07/0.04

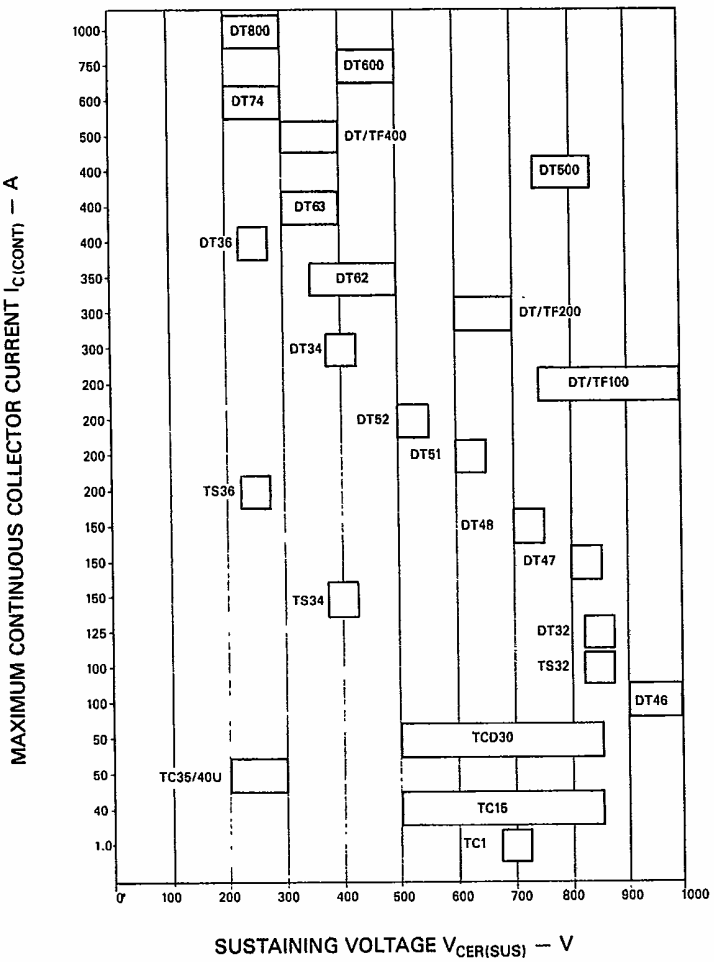
TC types Double diffused epitaxial 'hivox' passivated, low $V_{CE(SAT)}$ and $V_{BE(SAT)}$ single chip construction in TO-3 and SO-28. Applications in high power switching circuits, motor drive controls and switching regulators. Radiation tolerant.

TF types Triple diffused, pressure contact construction in flat base outline. Designed for switching into clamped inductive loads. Applications in choppers, inverters, AC machines (speed regulation) where frequency/voltage control is by PWM or multi-step techniques.

DT types Triple diffused pressure contact construction in capsule outline giving wide safe operating area (SOA) high power capability without thermal fatigue. Applications in high frequency inverters, motor controls, switching regulators, VLF transmitters, induction heating power supplies and at frequencies of 10 - 100 kHz where thyristors are not suitable, military and aerospace drives.

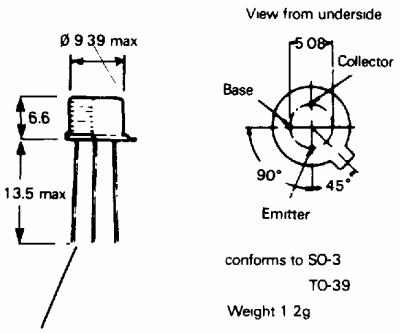
TCD types Triple diffused 'hivox' passivated monolithic darlington transistors for application in high current switching power supplies, inverters/regulators and PWM system control circuitry. The TCD types offer high voltage ratings, overload short circuit rating and a thermally stable structure for reliable power cycling.

TRANSISTOR AVAILABILITY



MEDL POWERLINE TRANSISTORS

DEVICE TYPE	$I_{C(PEAK)}$ Amps	V_{CEX} Volts	$V_{CER(SUS)}$ Volts	$t_{f(max)}$ μS	OUTLINE
TCD30	70	1000	850	1.0	SO-28/TO-3
TC1	2.0	800	700	0.7	TO-39
TC15	50	1000	850	0.35	SO-28/TO-3
TC35/40U	70	400	300	0.25	SO-28/TO-3
TS/DT32	150/150	1050	850	1.75	TS/E
TS/DT34	200/400	500	400	1.2	TS/E
TS/DT36	300/500	300	250	0.5	TS/E
DT46	150	1200	1000	2.25	E
DT47	175	1050	850	2.0	E
DT48	175	950	750	2.0	E
DT51	300	800	650	1.6	E
DT52	300	750	550	1.2	E
DT62	400	600	500	1.3	E
DT63	450	500	400	1.0	E
DT74	800	350	300	0.7	E
DT/TF100	300	1200	1000	1.5	R/TF
DT/TF200	450	900	700	1.0	R/TF
DT/TF400	600	500	400	1.2	R/TF
DT500	800	1000	850	1.3	S
DT600	1000	550	500	1.0	S
DT800	1200	400	300	1.8	S

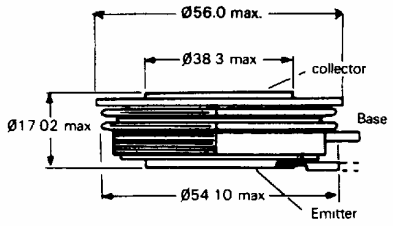


conforms to SO-3
TO-39
Weight 1 2g

Lead diameter
Ø0 49 max
Ø0 40 min

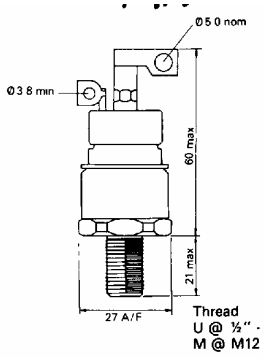
Conforms to BS3934 SO134A
Weight: 1.2g
Leads gold or tin plated

TO-39



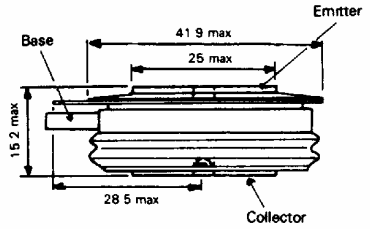
Weight. 200g
Recommend clamping force 10kn ± 10%
Finish: Nickel Plate
Base Wire: 14 AWG PTFE sleeved 305mm long

S



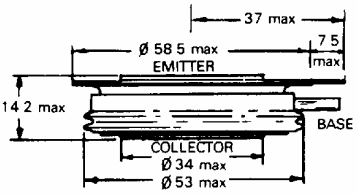
Weight: 110g ± 10%
Torque· Min 9 Nm
Max: 12 Nm
Finish: Nickel Plate

TS



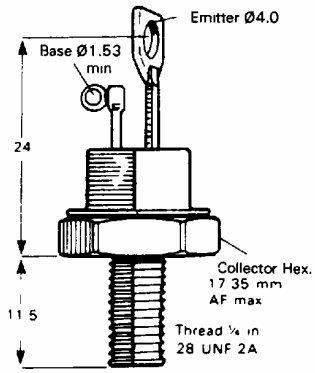
Weight (typical) 82g
Minimum clamping force 2 5kN
Maximum clamping force 4 5kN
Finish· Nickel Plate
Base Wire: 14 AWG PTFE sleeved 305mm long

E



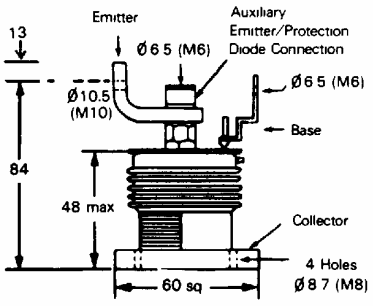
Weight· 140g
Recommended clamping force 9.5kN ± 10%
Finish Nickel Plate
Base Wire 14 AWG PTFE sleeved 305mm long

R



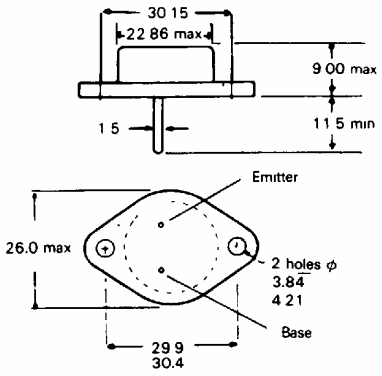
Conforms to SO-28
Weight 15g
Torque Max 4 0 Nm
Rec 3 5 Nm

SO-28



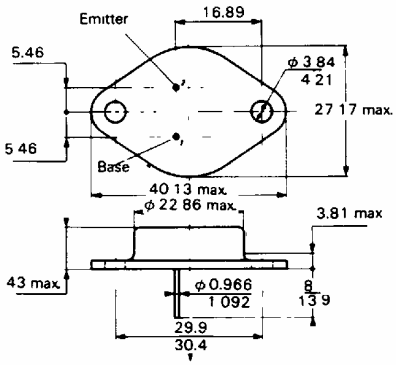
Weight 730g
Torque 17Nm ± 3Nm
Finish Bright Tin

TF



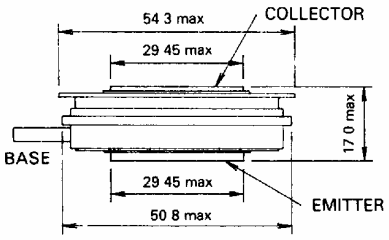
Weight 17.5g
Finish. Nickel Plated
Material· Solid copper base

MODIFIED TO-3



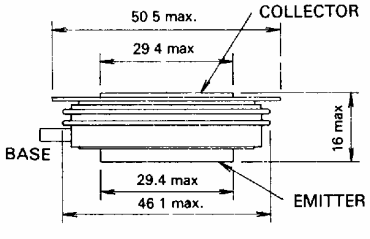
Weight: 12 5g
Finish. Nickel Plated

TO-3



Weight 170g
Recommended clamping force 9.5kN ± 10%
Finish. Nickel Plate
Base Wire 14 AWG PTFE sleeved 305mm long

A



Weight 100g
Minimum clamping force 4 5kN
Maximum clamping force 5 3kN
Finish: Nickel Plate
Base Wire: 14 AWG PTFE sleeved 305mm long

B

Full data on most device types is available on request

All dimensions in mm

NOTES: Outlines A & B available to special order only.
Devices to BS/Mil std specification available.
Non-standard base wires possible on request for specific orders.
Capsule Transistors must only be tested under correct clamping force.