



Solid State Devices, Inc.

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DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT10015

Screening ^{2/}

— = Not Screened

TX = TX Level

TXV = TXV Level

S = S Level

Package

/3 = TO-3

SFT10015

**50 AMP
NPN DARLINGTON
TRANSISTOR
400 VOLTS**

Features:

- BV_{CEO} 400 Volts
- Low Saturation Voltage
- 200°C Operating Temperature
- Hermetically Sealed, Isolated Package
- TX, TXV, S-Level Screening Available. Consult Factory.

Application Notes:

SFT10015 Darlington Transistor is a direct replacement of Motorola MJ10015. It is designed for high voltage, high speed, power switching in inductive circuits where fall time is critical. It is particularly suited for line operated switchmode applications such as:

- Switching Regulators
- Inverters
- Solenoid and Relay Drives
- Motor Controls
- Deflection Circuits

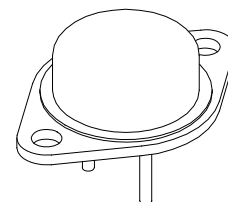
Maximum Ratings		Symbol	Value	Units
Collector – Emitter Voltage		V _{CEO}	400	Volts
Collector – Emitter Voltage		V _{CEV}	600	Volts
Emitter – Base Voltage		V _{EB}	8	Volts
Collector Current	Continuous	I _C	50	Amps
	Peak	I _{CM}	75	
Base Current	Continuous	I _B	10	Amps
	Peak	I _{BM}	15	
Total Power Dissipation	@ T _C = 25°C	P _D	250	Watts
Derate above 50°C	@ T _C = 100°C		143	Watts
			1.43	W/°C
Operating & Storage Temperature		T _J & T _{STG}	-65 to +200	°C
Maximum Thermal Resistance (Junction to Case)		R _{θJC}	0.7	°C/W

NOTES:

^{1/} For ordering information, price, operating curves, and availability - contact factory.

^{2/} Screening based on MIL-PRF-19500. Screening flows available on request.

TO-3(/3)



NOTE: All specifications are subject to change without notification.
SCD's for these devices should be reviewed by SSDI prior to release.

DATA SHEET #: TR0126B

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Electrical Characteristics, T _C = 25 °C		Symbol	Min	Typ	Max	Units	
Collector – Emitter Sustaining Voltage (I _C = 100 mA, I _B = 0, V _{CLAMP} = 400 V)		V _{CEO(sus)}	400	—	—	Volts	
Collector Cutoff Current (V _{CEV} = 600 V, V _{BE(off)} = 1.5V)		I _{CEV}	—	—	0.25	mA	
Emitter Cutoff Current (V _{EB} = 2V, I _C = 0)		I _{EBO}	—	160	350	mA	
DC Current Gain* (V _{CE} = 5V)	I _C = 10 A	H _{FE}	—	185	—		
	I _C = 20 A		25	125	—		
	I _C = 40 A		10	50	—		
Collector-Emitter Saturation Voltage*	I _C = 20 A, I _B = 1 A	V _{CE (SAT)}	—	1.3	2.2	Volts	
	I _C = 50 A, I _B = 10 A		—	2.1	5.0		
Base-Emitter Saturation Voltage* I _C = 20A, I _B = 1A, T _C = 25°C		V _{BE (SAT)}	—	2.05	2.75	Volts	
Diode Forward Voltage I _F = 20 A		V _F	—	2.0	5.0	Volts	
Safe Operating Area, DC (1 sec) 5V, 50A 20V, 8.75A 100V, 0.3A		SOA ₁ SOA ₂ SOA ₃	—	—	—		
Output Capacitance (V _{CB} = 10V, I _E = 0A, f = 1MHz)		C _{ob}	—	250	750	pF	
Delay Time	Switching Times, Resistive Load V _{CC} = 250 V, I _C = 20 A, I _{B1} = 1 A, V _{BE (off)} = 5 V, tp = 25µs, Duty Cycle ≤ 2%	t _(on)	t _d t _r	—	0.15	0.3	µs
Rise Time				—	1.0	1.2	µs
Storage Time		t _(off)	t _s t _f	—	2.2	2.5	µs
Fall Time				—	0.95	1.2	µs
Storage Time	Switching Times, Inductive Load, Clamped I _C = 20 A(pk), V _{CLAMP} = 250 V, I _{B1} = 1 A, V _{BE (off)} = 5 V, T _C = 25°C	t _{sv}		—	12	—	µs
Crossover Time		t _c		—	7.3	—	µs

NOTES:

* Pulse Test: Pulse Width = 300 μsec , Duty Cycle = 2%

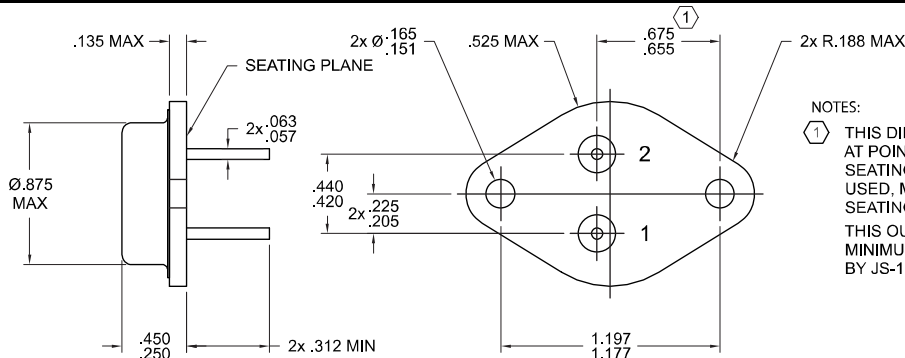
CASE OUTLINE: TO-3

Pin Out:

Case – Collector

1 – Base

2 – Emitter



NOTES:

① THIS DIMENSION SHALL BE MEASURED AT POINTS .050 - .055" BELOW THE SEATING PLANE. WHEN GAGE IS NOT USED, MEASUREMENT WILL BE MADE AT SEATING PLANE.
THIS OUTLINE DOES NOT MEET THE MINIMUM CRITERIA ESTABLISHED BY JS-10 FOR REGISTRATION.

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