



Solid State Devices, Inc.

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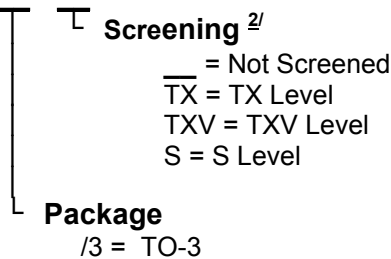
SFT10000/3

20 AMP NPN DARLINGTON TRANSISTOR 350 VOLTS

DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

SFT10000



Features:

- V_{CE0} 350 Volts
- Low Saturation Voltage
- 200°C Operating Temperature
- Hermetically Sealed, Isolated Package
- TX, TXV, S-Level Screening Available. Consult Factory.

Application Notes:

SFT10000 Darlington Transistor is a direct replacement of Motorola MJ1000. 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:

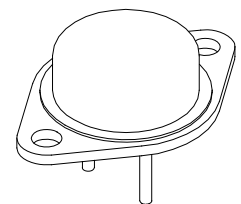
- Switching Regulators
- Inverters
- Solenoid and Relay Drives
- Motor Controls
- Deflection Circuits

Maximum Ratings		Symbol	Value	Units
Collector – Emitter Voltage		V_{CE0}	350	Volts
Collector – Emitter Voltage		V_{CEV}	450	Volts
Emitter – Base Voltage		V_{EB}	8	Volts
Collector Current	Continuous Peak	I_C I_{CM}	20 30	Amps
Base Current		I_B	2.5	Amps
Total Power Dissipation	@ $T_C = 25^\circ C$ @ $T_C = 100^\circ C$	P_D	175 100 1	Watts Watts W/°C
Derate above 50°C				
Operating & Storage Temperature		T_J & T_{STG}	-65 to +200	°C
Maximum Thermal Resistance (Junction to Case)		$R_{\theta JC}$	1	°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)





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Electrical Characteristics	Symbol	Min	Max	Units										
Collector – Emitter Sustaining Voltage ($I_C = 250\text{ mA}$, $I_B = 0$, $V_{CLAMP} = \text{Rated } V_{CEO}$)	$V_{CEO(sus)}$	80	—	Volts										
Collector – Emitter Sustaining Voltage ($V_{CLAMP} = \text{Rated } V_{CEX}$, $T_C = 100^\circ\text{C}$)	$V_{CEX(sus)}$	400 275	— —	Volts										
Collector Cutoff Current ($V_{CE} = \text{Rated Value}$, $V_{BE(off)} = 1.5\text{V}$)	I_{CBO}	— —	0.25 5.0	mA										
Collector Cutoff Current ($V_{CEV} = \text{Rated } V_{CEV}$, $R_{BE} = 50\Omega$, $T_C = 100^\circ\text{C}$)	I_{CEV}	—	5	mA										
Emitter Cutoff Current ($V_{EB} = 8\text{V}$, $I_C = 0$)	I_{EBO}	—	150	mA										
DC Current Gain* ($V_{CE} = 5\text{V}$)	H_{FE}	50 40	600 400											
Collector-Emitter Saturation Voltage*	$V_{CE(SAT)}$	—	1.9 3.0 2.0	Volts										
Base-Emitter Saturation Voltage* ($I_C = 10\text{A}$, $I_B = 400\text{mA}$)	$V_{BE(SAT)}$	—	2.5 2.5	Volts										
Diode Forward Voltage ($I_F = 10\text{A}$)	V_F	—	5.0	Volts										
Small Signal Current Gain ($I_C = 1\text{A}$, $V_{CE} = 10\text{V}$, $f = 1\text{MHz}$)	H_{FE}	10	—											
Output Capacitance ($V_{CB} = 30\text{V}$, $I_E = 0\text{A}$, $f = 2.0\text{MHz}$)	C_{ob}	100	325	pF										
Delay Time	$t_{(on)}$	t_d	—	0.2	μs									
Rise Time						$t_{(off)}$	t_r	—	0.6	μs				
Storage Time											t_s	—	3.5	μs
Fall Time														
Storage Time	t_{sv}	—	5.5	μs										
Crossover Time	t_c	—	3.7	μs										

NOTES:

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

