



Solid State Devices, Inc.

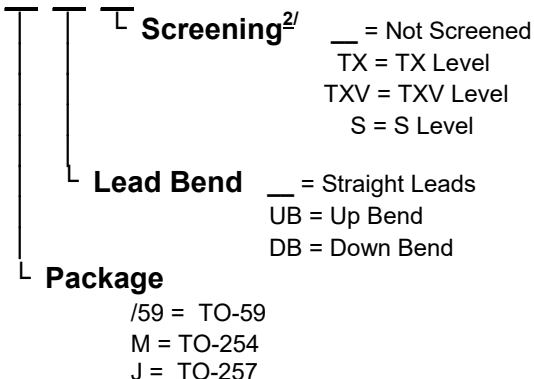
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Phone: (562) 404-4474 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

DESIGNER'S DATA SHEET

Part Number / Ordering Information^{1/}

SFT5002

SFT5004



SFT5002 / SFT5004 Series

10 AMP NPN HIGH SPEED POWER TRANSISTOR 150 VOLTS

Features:

- BV_{CEO} 120V min.
- Fast Switching
- High Frequency
- High Linear Gain, Low Saturation Voltage
- Radiation Tolerant
- 200°C Operating Temperature
- High Current, High Voltage Version of 2N5002 and 2N5004
- TX, TXV, S-Level Screening Available - Consult Factory

Maximum Ratings	Symbol	Value	Units
Collector – Base Voltage	V_{CBO}	150	Volts
Collector – Emitter Voltage	V_{CEO}	120	Volts
Emitter – Base Voltage	V_{EBO}	6.0	Volts
Continuous Collector Current	I_C	10	Amps
Base Current	I_B	2	Amps
Total Device Dissipation @ $T_c = 25^\circ C$ Derate Above 25°C	P_D	50 0.33	Watts W/°C
Operating & Storage Temperature	T_J & T_{STG}	-65 to +200	°C
Maximum Thermal Resistance (Junction to Case)	$R_{\theta JC}$	3.0	°C/W

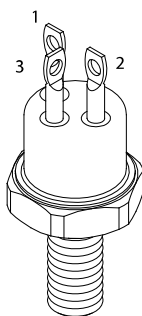
Available Part Numbers:

SFT5002/59	SFT5004J	SFT5002MDB
SFT5004/59	SFT5004JUB	SFT5004M
SFT5002J	SFT5004JDB	SFT5004MUB
SFT5002JUB	SFT5002M	SFT5004MDB
SFT5002JDB	SFT5002MUB	

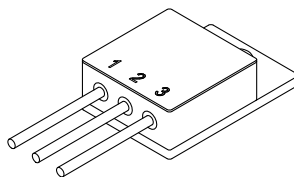
PIN ASSIGNMENT

CODE	FUNCTION	PIN 1	PIN 2	PIN 3
-	Normal	Collector	Emitter	Base

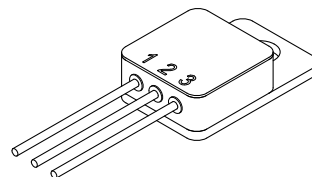
TO-59 (/59)



TO-254 (M)



TO-257 (J)



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

DATA SHEET #: TR0020F

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SFT5002 / SFT5004 Series

Electrical Characteristics ^{3/}			Symbol	Min	Max	Units	
Collector – Emitter Blocking Voltage			(I _C = 100 mA)	BV_{CEO}	120	—	Volts
Collector – Base Sustaining Voltage			(I _C = 200 μA)	BV_{CBO}	150	—	Volts
Emitter – Base Sustaining Voltage			(I _E = 200 μA)	BV_{EBO}	6	—	Volts
Collector Cutoff Current			(V _{CE} = 40 V)	I_{CEO}	—	50	μA
			(V _{CB} = 60 V, V _{BE} = 2 V, T _C = 150°C)	I_{CEV}	—	500	
Collector Cutoff Current			(V _{CE} = 60 V)	I_{CES}	—	1.0	μA
			(V _{CE} = 100 V)		—	1.0	
Emitter Cutoff Current			(V _{EB} = 5 V)	I_{EBO}	—	1.0	μA mA
			(V _{EB} = 6 V)		—	1.0	
DC Current Gain*	SFT5002	(I _C = 50 mA, V _{CE} = 5 V)	h_{FE}	20	150		
		(I _C = 2.5 A, V _{CE} = 5 V)		30			
		(I _C = 5.0 A, V _{CE} = 5 V)		20			
		(I _C = 10 A, V _{CE} = 5 V)		15			
SFT5004	(I _C = 50 mA, V _{CE} = 5 V)	50		200			
	(I _C = 2.5 A, V _{CE} = 5 V)	70					
	(I _C = 5.0 A, V _{CE} = 5 V)	40					
	(I _C = 10 A, V _{CE} = 5 V)	22					
Collector-Emitter Saturation Voltage*			(I _C = 2.5 A, I _B = 250 mA) (I _C = 5.0 A, I _B = 500 mA)	V_{CE} (SAT)	— —	0.75 1.5	Volts
Base-Emitter Saturation Voltage*			(I _C = 2.5 A, I _B = 250 mA) (I _C = 5.0 A, I _B = 500 mA)	V_{BE} (SAT)	— —	1.45 2.2	Volts
Current Gain – Bandwidth Product		SFT5002 - V _{CE} = 5 V, I _C = 0.5 A, f = 10 MHz SFT5004 - V _{CE} = 5 V, I _C = 0.5 A, f = 10 MHz	f_T	60 70	— —	MHz	
Output Capacitance			V _{CB} = 10 V, I _E = 0, f = 1.0 MHz	C_{ob}	—	250	pF
On Time	(V _{CC} = 30 V, I _C = 5.0 A, V _{BE (off)} = 3.7 V, I _{B1} = I _{B2} = 500 mA, R _L = 6Ω)		t_(on)	—	500	ns	
Off Time			t_(off)	—	1.3	μs	

NOTES:

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

1/ For ordering information, price, and availability - contact factory.

2/ Screening Based on MIL-PRF-19500. Screening flows available on request.

3/ Unless otherwise specified, all electrical characteristics @25°C.

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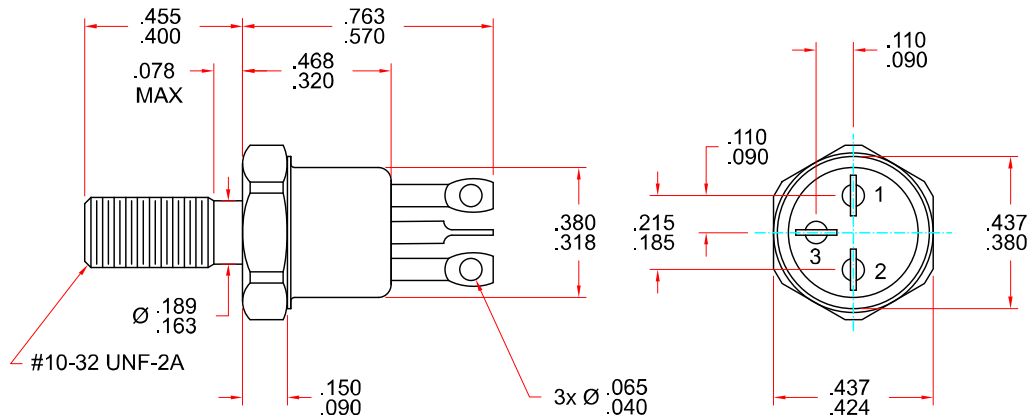
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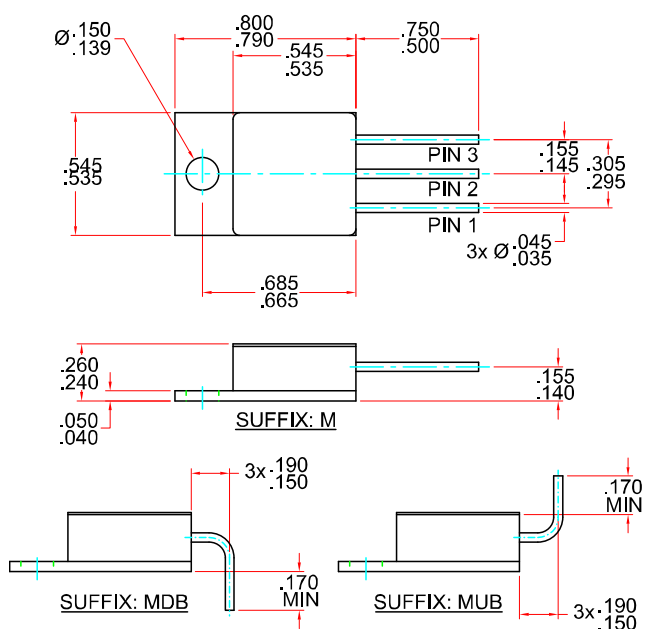
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SFT5002 / SFT5004 Series

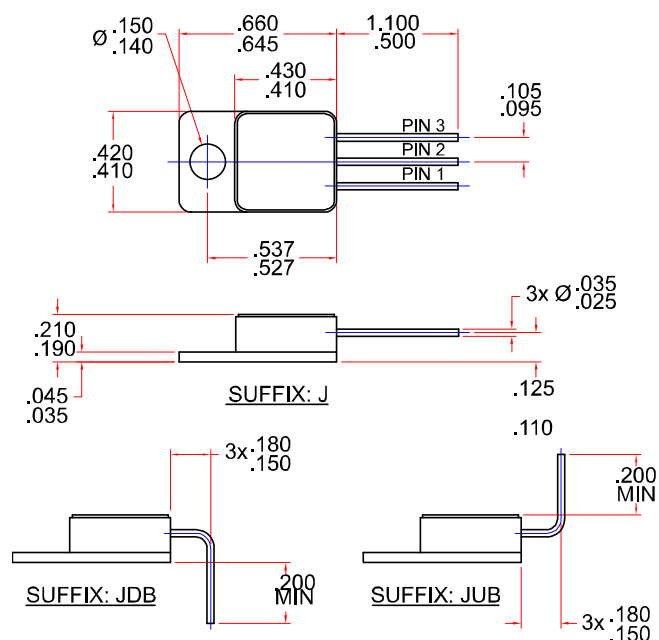
Package Outline: TO-59 (/59)



Package Outline: TO-254 (M)



Package Outline: TO-257 (J)



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