SOLID STATE DEVICES, INC.
14701 Firestone Blvd. * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

SFT5002/SFT5004 SERIES

10 AMP 150 VOLTS NPN HIGH SPEED POWER TRANSISTOR

DESIGNER'S DATA SHEET

Part Number /Ordering Information 1/

SFT5002 J UB TX
SFT5004 J UB TX

- **Screening** 2/: _ = Not Screened
  TX = TX Level
  TXV = TXV Level
  S = Space Level
- **Lead Bend:** 3/ _ = Straight
  UB = Up Bend
  DB = Down Bend
- **Package:** 3/ J = TO-257
  /59 = TO-59

FEATURES

- **BV_{CEO} 120V min.**
- **Fast Switching**
- **High Frequency**
- **High Linear Gain, Low Saturation Voltage.**
- **Radiation Tolerant**
- **200°C Operating, Gold Eutectic Die Attach.**
- **High Current, High Voltage Version of 2N5002 and 2N5004**

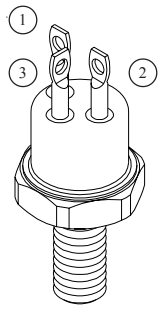
MAXIMUM RATINGS	SYMBOL	VALUE	UNITS
Collector-Base Voltage	V_{CBO}	150	Volts
Collector-Emitter Voltage	V_{CEO}	120	Volts
Emitter-Base Voltage	V_{EBO}	6.0	Volts
Continuous Collector Current	I_C	10	Amps
Base Current	I_B	2	Amps
Operating and Storage Temperature	T_J, T_{STG}	-65 to +200	°C
Total Device Dissipation @ T_C # 25°C Derate above 25°C	P_D	50 0.33	W W/°C
Thermal Resistance, Junction to Case	$R_{\Theta JC}$	3.0	°C/W

Available Part Numbers:

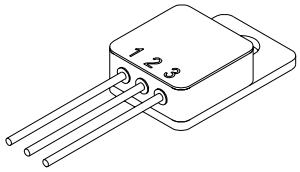
SFT5002/59	SFT5004/59
SFT5002J	SFT5004J
SFT5002JUB	SFT5004JUB
SFT5002JDB	SFT5004JDB

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

TO-59 (/59)



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 #: TR0020C

SFT5002/SFT5004 SERIES

SOLID STATE DEVICES, INC.
14701 Firestone Blvd * La Mirada, Ca 90638
Phone: (562) 404-7855 * Fax: (562) 404-1773
ssdi@ssdi-power.com * www.ssdi-power.com

ELECTRICAL CHARACTERISTICS 4/		SYMBOL	MIN	MAX	UNITS
Collector-Emitter Breakdown Voltage (I_C = 100mA)		BV_{CEO}	120	-	V_{DC}
Collector-Base Sustaining Voltage (I_C = 200µA)		BV_{CBO}	150	-	V_{DC}
Emitter-Base Sustaining Voltage (I_E = 200µA)		BV_{EBO}	6	-	V_{DC}
Collector Cutoff Current					
(V_{CE} = 60V_{DC} , V_{BE} = 2V_{DC} , T_C = 150°C)		I_{CEV}	-	500	µA_{DC}
(V_{CE} = 40V_{DC})		I_{CEO}	-	50	µA_{DC}
Collector Cutoff Current	V_{CE} = 60V_{DC}	I_{CES}	-	1.0	µA_{DC}
	V_{CE} = 100V_{DC}		-	1.0	mA_{DC}
Emitter Cutoff Current	V_{EB} = 5V_{DC}	I_{EBO}	-	1.0	µA_{DC}
	V_{EB} = 6V_{DC}		-	1.0	mA_{DC}
DC Current Gain*					
(**SFT5002**)	I_C = 50mA_{DC}, V_{CE} = 5V_{DC}	H_{FE}	20	150	
	I_C = 2.5A_{DC}, V_{CE} = 5V_{DC}		30		
	I_C = 5.0A_{DC}, V_{CE} = 5V_{DC}		20		
(**SFT5004**)	I_C = 10A_{DC}, V_{CE} = 5V_{DC}		15		
	I_C = 50mA_{DC}, V_{CE} = 5V_{DC}		50	200	
	I_C = 2.5A_{DC}, V_{CE} = 5V_{DC}		70		
	I_C = 5.0A_{DC}, V_{CE} = 5V_{DC}		40		
	I_C = 10A_{DC}, V_{CE} = 5V_{DC}		22		
Collector-Emitter Saturation Voltage *	I_C = 2.5A_{DC}, I_B = 250mA_{DC}	$V_{CE(SAT)}$	-	0.75	V_{DC}
	I_C = 5.0A_{DC}, I_B = 500mA_{DC}		-	1.5	
Base-Emitter Saturation Voltage *	I_C = 2.5A_{DC}, I_B = 250mA_{DC}	$V_{BE(SAT)}$	-	1.45	V_{DC}
	I_C = 5.0A_{DC}, I_B = 500mA_{DC}			2.2	
Current Gain Bandwidth Product (I_C = 500mA_{DC} , V_{CE} = 5V_{DC}, f = 10MHz)	**SFT5002**	f_T	60	-	MHz
	SFT5004		70	-	
Output Capacitance (V_{CB} = 10V_{DC} , I_E = 0, f = 1MHz)		C_{ob}	-	250	pF
On Time	V_{CC} = 30V_{DC} , I_{B1} = I_{B1} = 500mA_{DC}, I_C = 5A_{DC}, $V_{BE(off)}$ = 3.7V_{DC}, R_L = 6 S	t_{on}	-	500	ns
Off Time		t_{off}	-	1.3	µs

NOTES:

1/ For Ordering Information, Price, and Availability Contact Factory.

2/ Screening per MIL-PRF-19500.

3/ For Package Outlines Contact Factory.

4/ T_C = 25°C, Unless Otherwise Specified.

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

Package Outline	
Part Number	**Document**
SFT5002/59 / SFT5004/59	60-0149-059
SFT5002J / SFT5004J	60-0149-504
SFT5002JDB / SFT5004JDB	60-0149-504
SFT5002JUB / SFT5004JUB	60-0149-504