

X00120

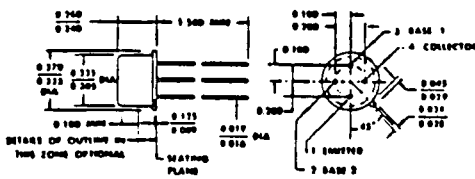
SFD5390 5 AMP



NPN DARLINGTON TRANSISTOR 120 VOLTS

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CASE STYLE



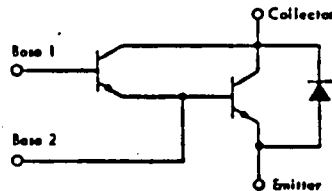
ALL JEDEC TO-33 DIMENSIONS AND NOTES ARE APPLICABLE.

THE COLLECTOR IS IN ELECTRICAL CONTACT WITH THE CASE.

ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED

FEATURES

- VERY HIGH GAIN 1000 MIN AT 5A
- HIGH SWITCHING SPEED 300ns TYP t_{on}
- LOW $V_{CE(SAT)}$ 1.4V AT 2A
- BUILT IN COMMUTATING DIODE



MAXIMUM RATINGS

RATING	SYMBOL	VALUE	UNIT
Collector Base-1 Voltage	V_{CB-1}	120	Volts
Collector Emitter Voltage	V_{CEO}	80	Volts
Emitter Base-1 Voltage	V_{EB-1}	15	Volts
Continuous Collector Current	I_C	2	Amps
Peak Collector Current	$I_{C(peak)}$	5	Amps
Commutating Diode Current	I_E	2	Amps
Continuous Base-One Current	I_{B1}	0.1	Amps
Continuous Base-Two Current	I_{B2}	1	Amps
Continuous Device Dissipation ($T_c < 100^\circ C$)	P_D	15	Watts
Continuous Device Dissipation ($T_a < 25^\circ C$)	P_D	1	Watts
Operating Collector Junction Temp. Range	T_j	-65 to 200	$^\circ C$
Storage Temperature Range	T_{stg}	-65 to 200	$^\circ C$

THERMAL CHARACTERISTICS

CHARACTERISTICS	SYMBOL	VALUE	UNIT
Thermal Resistance Junction to Case	$R_{\theta JC}$	6.67	$^\circ C/W$
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	175	$^\circ C/W$



ELECTRICAL CHARACTERISTICS

PARAMETER	SYMBOL	MIN	MAX	UNIT
*Collector-Emitter Breakdown Voltage $I_C = 30\text{mA}$, $I_{B1}=I_{B2}=0\text{Vdc}$	BV_{CEO}	80		Volts
Collector Cutoff Current $V_{CE} = 120\text{Vdc}$, $V_{B1-E} = V_{B2-E} = 0\text{Vdc}$ $V_{CE} = 80\text{Vdc}$, $V_{B1-E} = V_{B2-E} = 0\text{Vdc}$	I_{CES}		10 1	μA mA
Emitter Cutoff Current $V_{EB1} = 15\text{Vdc}$, $I_C = 0\text{A}$	I_{EB10}		10	μA
DC Current Gain $I_C = 1\text{A}$, $V_{CE} = 5\text{Vdc}$ $I_C = 2\text{A}$, $V_{CE} = 5\text{Vdc}$ $I_C = 5\text{A}$, $V_{CE} = 5\text{Vdc}$	h_{FE}	1000 2000 1000	20000	
*Collector-Emitter Saturation Voltage $I_C = 2\text{A}$, $I_{B1} = 2\text{mA}$ $I_C = 5\text{A}$, $I_{B1} = 10\text{mA}$	$V_{CE(sat)}$		1.4 3.5	Volts
*Base-One Emitter Voltage $I_C = 1\text{A}$, $V_{CE} = 5\text{Vdc}$ $I_C = 2\text{A}$, $V_{CE} = 5\text{Vdc}$	$V_{B1E(ON)}$		1.8 1.1 2.2	Volts
Small-Signal Common-Emitter Forward Current Transfer Ratio $I_C = 1\text{A}$, $V_{CE} = 10\text{Vdc}$, $I_{B2} = 0\text{A}$, $f = 20\text{MHz}$	h_{fe}	2		
Common-Base-One Open Circuit Output Capacitance $V_{CB1} = 10\text{Vdc}$, $I_E = 0$	C_{ob10}		150	pF
Turn On Time $I_C=2\text{A}$, $I_{B1(1)}=4\text{mA}$, $I_{B1(2)}=8\text{mA}$, $V_{B1-E}=10\text{Vdc}$, Turn Off Time $R_L=14$	t_{on} t_{off}	300 TYP 1.5 TYP		ns μs

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

