

14849 Firestone Boulevard · La Mirada, CA 90638  
 Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424

**SFFC50M**  
**SFFC50Z**

**11 AMP**  
**600 VOLTS**  
**0.6 Ω**  
**N-CHANNEL**  
**POWER MOSFET**

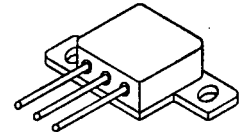
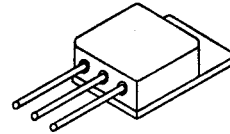
**Designer's Data Sheet**

**FEATURES:**

- Rugged construction with poly silicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically sealed surface mount package
- Low inductance package
- TX, TXV and Space Level screening available
- Replaces: IRFC50 types

TO-254

TO-254Z

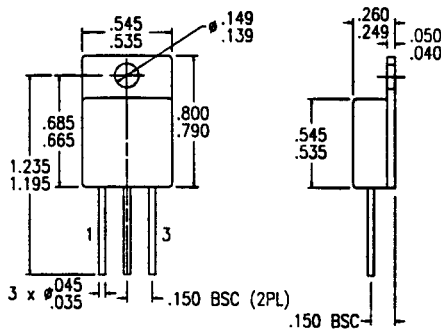


**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>DS</sub>	600	Volts
Gate to Source Voltage	V <sub>GS</sub>	±20	Volts
Continuous Drain Current @TC=25°C @TC=100°C	I <sub>D</sub>	11 ---	Amps
Operating and Storage Temperature	Top & Tstg	-55 to +150	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	1.0	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°C	P <sub>D</sub>	125 95	Watts
Single Pulse Avalanche Energy	E <sub>AS</sub>	920	mJ
Repetitive Avalanche Energy	E <sub>AR</sub>	18	mJ

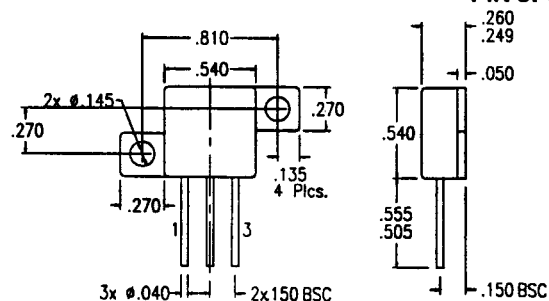
**PACKAGE OUTLINE: TO-254**

**PIN OUT:**  
**PIN 1: DRAIN**  
**PIN 2: SOURCE**  
**PIN 3: GATE**



**PACKAGE OUTLINE: TO-254Z**

**PIN OUT:**  
**PIN 1: DRAIN**  
**PIN 2: SOURCE**  
**PIN 3: GATE**



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

**DATA SHEET #: F00291 A**

**MED**

**SFFC50M  
SFFC50Z**

PRELIMINARY



**SOLID STATE DEVICES, INC**

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**ELECTRICAL CHARACTERISTICS @ T<sub>J</sub>=25° C (Unless Otherwise Specified):**

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (VGS=0 V, ID=250µA)		BV <sub>DSS</sub>	600	---	---	V
Temperature Coefficient of Breakdown Voltage		$\frac{\Delta BV_{DSS}}{\Delta T_j}$	---	---	---	V/°C
Drain to Source on State Resistance (VGS=10 V)	ID=6 A ID=11 A	R <sub>DS(on)</sub>		0.5 0.5	0.60 0.65	Ω
Gate Threshold Voltage (VDS=VGS, ID=250µA)		VGS(th)	2		4	V
Forward Transconductance (VDS=VGS, IDS=6 A)		g <sub>fs</sub>	5.7	13	--	S(Ω)
Zero Gate Voltage Drain Current (VDS=80% rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125° C)		IDSS	---	---	100 500	µA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated VGS	IGSS	---	---	100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	VGS=10 Volts VDS=360 V Rated ID	Qg Qgs Qgd	---	100 11 56	140 20 69	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	VDD=50% rated VDS rated ID RG=6.2Ω	td(on) tr td(off) tf	---	18 37 88 36	---	nsec
Diode Forward Voltage (IS=rated ID, VGS=0 V, T <sub>J</sub> =25° C)		VSD	---	---	1.4	V
Diode Reverse Recovery Time Reverse Recovery Charge	T <sub>J</sub> =150° C IF=rated ID di/dt=100 A/µsec	t <sub>rr</sub> QRR	---	550 3.9	830 5.9	nsec µC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	VGS=0 Volts VDS=25 Volts f= 1 MHz	Ciss Coss Crss	---	2700 300 61	---	pF