

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

Designer's Data Sheet

FEATURES:

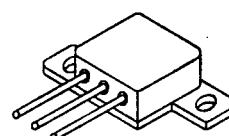
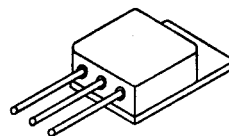
- Rugged construction with poly silicon gate
- Low RDS(on) and high transconductance
- Excellent high temperature stability
- Very fast switching speed
- Fast recovery and superior dv/dt performance
- Increased reverse energy capability
- Low input and transfer capacitance for easy paralleling
- Hermetically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

SFFC50M
SFFC50Z

11 AMP
600 VOLTS
0.6 Ω
N-CHANNEL
POWER MOSFET

TO-254

TO-254Z

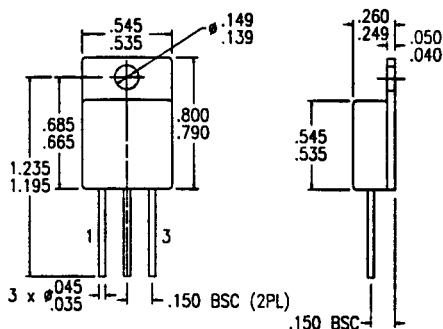


MAXIMUM RATINGS

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

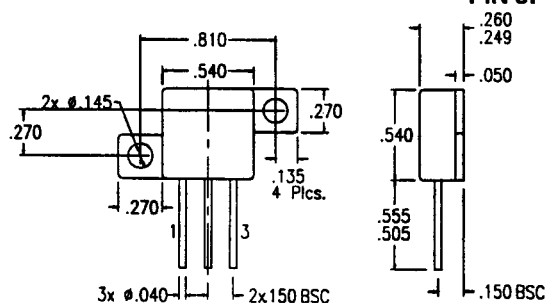
PACKAGE OUTLINE: TO-254

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. SSDI'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 @ $T_J=25^{\circ}\text{C}$ (Unless Otherwise Specified):

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage ($V_{GS}=0\text{ V}$, $I_D=250\mu\text{A}$)		BV_{DSS}	600	---	---	V
Temperature Coefficient of Breakdown Voltage		$\frac{\Delta BV_{DSS}}{\Delta T_J}$	---	---	---	V/°C
Drain to Source on State Resistance ($V_{GS}=10\text{ V}$)	$I_D=6\text{ A}$ $I_D=11\text{ A}$	$R_{DS(on)}$		0.5 0.5	0.60 0.65	Ω
Gate Threshold Voltage ($V_{DS}=V_{GS}$, $I_D=250\mu\text{A}$)		$V_{GS(th)}$	2		4	V
Forward Transconductance ($V_{DS}=V_{GS}$, $I_{DS}=6\text{ A}$)		g_{fs}	5.7	13	--	S(Ω)
Zero Gate Voltage Drain Current ($V_{DS}=80\%$ rated voltage, $V_{GS}=0\text{ V}$) ($V_{DS}=80\%$ rated V_{DS} , $V_{GS}=0\text{ V}$, $T_A=125^{\circ}\text{C}$)		I_{DSS}	---	---	100 500	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated V_{GS}	I_{GSS}	---	---	100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	$V_{GS}=10\text{ Volts}$ $V_{DS}=360\text{ V}$ Rated I_D	Q_g Q_{gs} Q_{gd}	---	100 11 56	140 20 69	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=50\%$ rated V_{DS} rated I_D $R_G=6.2\Omega$	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	---	18 37 88 36	---	nsec
Diode Forward Voltage ($I_S=\text{rated } I_D$, $V_{GS}=0\text{ V}$, $T_J=25^{\circ}\text{C}$)		V_{SD}	---	---	1.4	V
Diode Reverse Recovery Time Reverse Recovery Charge	$T_J=150^{\circ}\text{C}$ $I_F=\text{rated } I_D$ $di/dt=100\text{ A}/\mu\text{sec}$	t_{rr} Q_{RR}	---	550 3.9	830 5.9	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	$V_{GS}=0\text{ Volts}$ $V_{DS}=25\text{ Volts}$ $f=1\text{ MHz}$	C_{iss} C_{oss} C_{rss}	---	2700 300 61	---	pF