



PRELIMINARY

SOLID STATE DEVICES, INC

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

# SFFC40-28

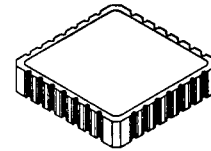
**4.2\*AMP  
600 VOLTS  
1.2Ω  
N-CHANNEL  
POWER MOSFET**

## 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 leads
- TX, TXV and Space Level screening available
- Replaces: IRFC40 Types

28 PIN CLCC



### 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	I <sub>D</sub>	4.2*	Amps
Operating and Storage Temperature	T <sub>op</sub> & T <sub>stg</sub>	-55 to +150	°C
Thermal Resistance, Junction to Case	R <sub>θJC</sub>	6.0	°C/W
Total Device Dissipation @ TC=25°C	P <sub>d</sub>	21	Watts
Total Device Dissipation @ TC=80°C		11	

### PACKAGE OUTLINE: 28 PIN CLCC

#### PIN OUT:

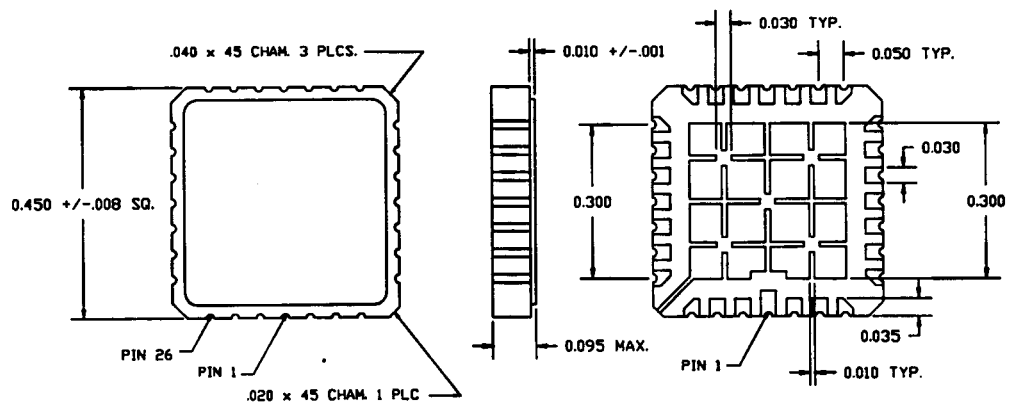
SOURCE: 1, 15-28

DRAIN: 5-11

GATE: 2, 3, 13, 14

#### NOTE:

All Drain/Source Pins must be connected on the PC Board in order to maximize current capability and minimize RDS(on)



\* Rating based on size of chip & package. Device rating may vary depending on mounting and heatsink conditions. Consult SSDI Marketing department for thermal derating details.

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

DATA SHEET #: F00343 D

**SFFC40-28**

PRELIMINARY

**SOLID STATE DEVICES, INC**14849 Firestone Boulevard · La Mirada, CA 90638  
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**ELECTRICAL CHARACTERISTICS @ T<sub>J</sub>=25°C (Unless Otherwise Specified)**

RATING		SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (V <sub>GS</sub> =0 V, I <sub>D</sub> =250μA)		BV <sub>DSS</sub>	600	---	---	V
Drain to Source on State Resistance (V <sub>GS</sub> =10 V, I <sub>D</sub> =3.7A)		R <sub>DS(on)</sub>	---	0.72	1.2	Ω
Gate Threshold Voltage (V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =250μA)		V <sub>GS(th)</sub>	2.0	---	4.0	V
Forward Transconductance (V <sub>DS</sub> ≥10V, I <sub>DS</sub> =3.7A)		g <sub>fs</sub>	4.9	7.4	---	S(Ω)
Zero Gate Voltage Drain Current (V <sub>DS</sub> =max rated voltage, V <sub>GS</sub> =0 V) (V <sub>DS</sub> =80% rated V <sub>DS</sub> , V <sub>GS</sub> =0 V, T <sub>A</sub> =125°C)		I <sub>DSS</sub>	---	---	100 500	μA
Gate to Source Leakage Forward Gate to Source Leakage Reverse	At rated V <sub>GS</sub>	I <sub>GSS</sub>	---	---	100 -100	nA
Total Gate Charge Gate to Source Charge Gate to Drain Charge	V <sub>GS</sub> =10 Volts V <sub>DS</sub> =360V I <sub>D</sub> =6.2A	Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	---	42 6 22	60 8.3 30	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	V <sub>DD</sub> =50% rated V <sub>DS</sub> I <sub>D</sub> =6.2A R <sub>G</sub> = 9.1Ω R <sub>D</sub> =47Ω	t <sub>d(on)</sub> t <sub>r</sub> t <sub>d(off)</sub> t <sub>f</sub>	---	13 18 55 20	20 27 85 30	nsec
Diode Forward Voltage (I <sub>S</sub> =rated I <sub>D</sub> , V <sub>GS</sub> =0 V, T <sub>J</sub> =25°C)		V <sub>SD</sub>	---	---	1.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	T <sub>J</sub> =25°C I <sub>F</sub> =6.2A di/dt=100 A/μsec	t <sub>rr</sub> Q <sub>RR</sub>	---	470 4.0	940 7.9	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	V <sub>GS</sub> =0 Volts V <sub>DS</sub> =25 Volts f= 1 MHz	C <sub>iss</sub> C <sub>oss</sub> C <sub>rss</sub>	---	1300 180 75	1400 400 200	pF

For thermal derating curves and other characteristic curves please contact SSDI Marketing Department.