



PRELIMINARY

SOLID STATE DEVICES, INC

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

# SFF330-28

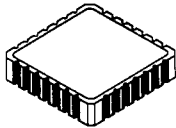
**5.5 AMP  
400 VOLTS  
1.1Ω  
N-CHANNEL  
POWER MOSFET**

## Designer's Data Sheet

### FEATURES:

- Rugged construction with polysilicon 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
- Ceramic Seals for improved hermeticity
- Hermetically sealed surface mount package
- TX, TXV and Space Level screening available
- Replaces: IRF330 Types

28 PIN CLCC



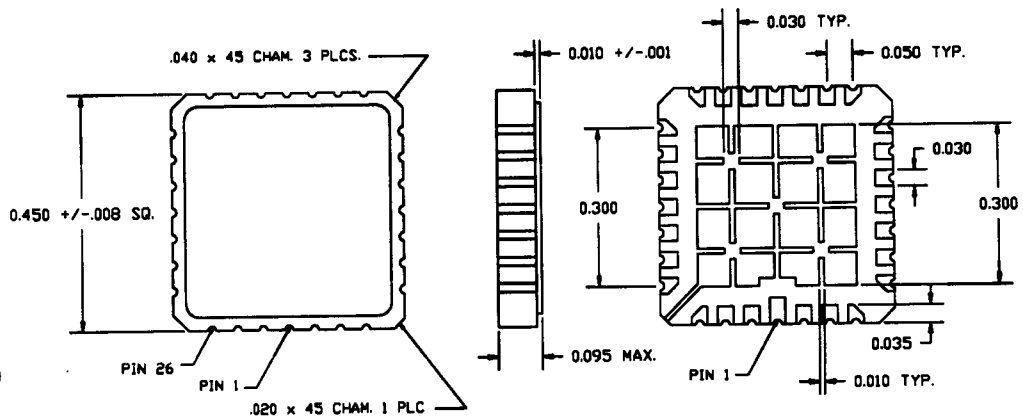
### MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>ds</sub>	400	Volts
Gate to Source Voltage	V <sub>gs</sub>	± 20	Volts
Continuous Drain Current	I <sub>D</sub>	5.5	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	°C/W
Thermal Resistance, Junction to Ambient	R <sub>θJA</sub>	120	°C/W
Total Device Dissipation @ TC=25°C	P <sub>D</sub>	21	Watts
Total Device Dissipation @ TC=55°C		15	
Total Device Dissipation @ TA=25°C		1	

### 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)



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

DATA SHEET #: F00127 A

MED

**SFF330-28**

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**SSDI****SOLID STATE DEVICES, INC**14849 Firestone Boulevard · La Mirada, CA 90638  
Phone: (714) 670-SSDI (7734) · Fax: (714) 522-7424**ELECTRICAL CHARACTERISTICS @  $T_J=25^\circ\text{C}$  (Unless Otherwise Specified)**

RATING	SYMBOL	MIN	TYP	MAX	UNIT	
Drain to Source Breakdown Voltage ( $V_{GS}=0\text{ V}$ , $I_D=250\mu\text{A}$ )	$BV_{DSS}$	400	440	---	V	
Drain to Source on State Resistance ( $V_{GS}=10\text{ V}$ , $I_D=60\%$ Rated ID)	$R_{DS(on)}$	---	1.0	1.1	$\Omega$	
On State Drain Current ( $V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $V_{GS}=10\text{ V}$ )	$I_D(on)$	5.5	---	---	A	
Gate Threshold Voltage ( $V_{DS}=10\text{ V}$ , $V_{GS}$ , $I_D=250\mu\text{A}$ )	$V_{GS(th)}$	2.0	3.2	4.0	V	
Forward Transconductance ( $V_{DS} > I_D(on) \times R_{DS(on)}$ Max, $I_{DS}=60\%$ rated ID)	$g_{fs}$	2.9	4.3	---	$S(\bar{v})$	
Zero Gate Voltage Drain Current ( $V_{DS}=\text{max rated voltage}$ , $V_{GS}=0\text{ V}$ ) ( $V_{DS}=80\%$ rated $V_{DS}$ , $V_{GS}=0\text{ V}$ , $T_A=125^\circ\text{C}$ )	$I_{DSS}$	---	---	250 1000	$\mu\text{A}$	
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	$V_{GS}=10\text{ Volts}$ 80% rated $V_{DS}$ Rated ID	$Q_g$ $Q_{gs}$ $Q_{gd}$	---	23 3.1 12	55 4.6 18	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	$V_{DD}=40\%$ rated $V_{DS}$ 50% rated ID $R_G=12\Omega$ $R_D=36\Omega$	$t_{d(on)}$ $t_r$ $t_{d(off)}$ $t_f$	---	11 19 37 16	17 29 56 24	nsec
Diode Forward Voltage ( $I_S=\text{rated } I_D$ , $V_{GS}=0\text{ V}$ , $T_J=25^\circ\text{C}$ )	$V_{SD}$	---	---	1.6	V	
Diode Reverse Recovery Time Reverse Recovery Charge	$T_J=25^\circ\text{C}$ $I_F=\text{rated } I_D$ $di/dt=100\text{ A}/\mu\text{sec}$	$t_{rr}$ $Q_{RR}$	140 0.93	310 2.0	660 4.3	nsec $\mu\text{C}$
Input Capacitance Output Capacitance Reverse Transfer Capacitance	$V_{GS}=0\text{ Volts}$ $V_{DS}=25\text{ Volts}$ $f=1\text{ MHz}$	$C_{iss}$ $C_{oss}$ $C_{rss}$	---	620 100 21	---	pF

SAFE OPERATING AREA (S.O.A.)  
 $T_C = 25^\circ\text{C}$ , D.C. CONDITION