



PRELIMINARY

SOLID STATE DEVICES, INC

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

**SFF140-28**

**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
- TX, TXV and Space Level screening available
- Replaces: IRF140 Types

**28\* AMP  
 100 VOLT  
 0.095 Ω  
 N-CHANNEL  
 POWER MOSFET**

**28 PIN CLCC**

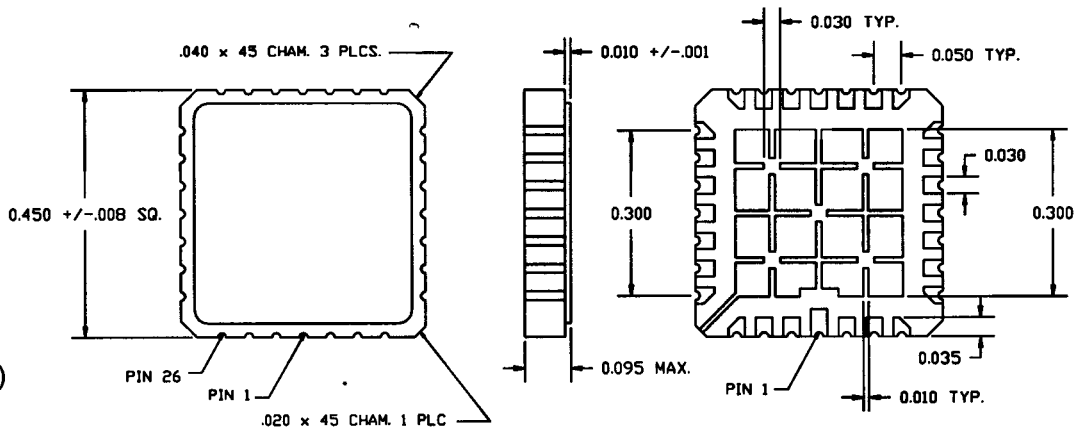
**MAXIMUM RATINGS**

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	V <sub>ds</sub>	100	Volts
Gate to Source Voltage	V <sub>gs</sub>	±20	Volts
Continuous Drain Current	I <sub>D</sub>	28*	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>	3.5	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=80°C	P <sub>D</sub>	20* 20	Watts

**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. 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.	<b>DATA SHEET #: F00003 B</b>	<b>MED</b>
---	-------------------------------	------------

**SFF140-28**

PRELIMINARY



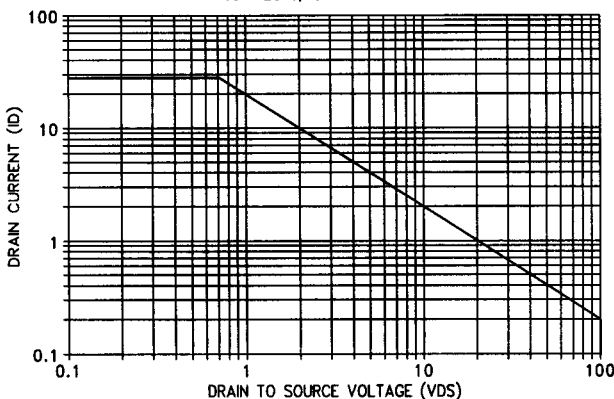
**SOLID STATE DEVICES, INC**

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 (VGS=0 V, ID=250µA)	BV <sub>DSS</sub>	100	---	---	V
Drain to Source on State Resistance (VGS=10 V, ID=60% Rated ID)	R <sub>DS(on)</sub>	---	0.075	0.095**	Ω
On State Drain Current (VDS > ID(on) X R <sub>DS(on)</sub> Max, VGS=10 V)	ID(on)	28*	---	---	A
Gate Threshold Voltage (VDS=VGS, ID=250µA)	VGS(th)	2.0	---	4.0	V
Forward Transconductance (VDS > ID(on) X R <sub>DS(on)</sub> Max, IDS=60% rated ID)	g <sub>fs</sub>	8.7	11	---	S(τ)
Zero Gate Voltage Drain Current (VDS=max rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=150°C)	IDSS	---	---	250 1000	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 50% rated VDS Rated ID Q <sub>g</sub> Q <sub>gs</sub> Q <sub>gd</sub>	---	40 8 20	59 12 28	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	VDD=50% rated VDS rated ID RG= 9.1Ω td(on) tr td(off) tf	---	15 72 40 50	23 110 60 75	nsec
Diode Forward Voltage (IS=rated ID, VGS=0 V, T <sub>J</sub> =25°C)	VSD	---	---	2.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	T <sub>J</sub> =25°C IF=10A di/dt=100 A/µsec trr QRR	70 0.44	150 0.91	300 1.9	nsec µC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	VGS=0 Volts VDS=25 Volts f= 1 MHz Ciss Coss Crss	---	1500 500 90	---	pF

SAFE OPERATING AREA (S.O.A.)  
 TC = 25°C, D.C. CONDITION



**NOTES:**

- \* Rating based on size of chip. Device rating may vary depending on mounting and heatsink conditions. Consult SSDI Marketing department for thermal derating details.
- \*\* Due to package resistance; all Source/Drain pins must be connected on the PC Board in order to obtain the lowest R<sub>DS(on)</sub> possible.