

# SOLID STATE DEVICES, INC.

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## DESIGNER'S DATA SHEET

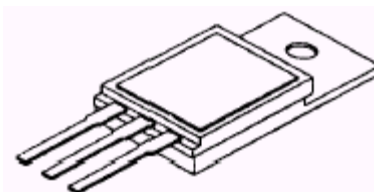
### FEATURES:

- Rugged construction with poly silicon gate
- Ultra 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 package
- TX, TXV and Space Level screening available
- Replaces: SMM70N10 Types

**SFF70N10C**

**70 AMP  
600 VOLT  
0.030Ω  
N-CHANNEL  
POWER MOSFET**

**TO-254 Ceramic**



## MAXIMUM RATINGS

CHARACTERISTIC	SYMBOL	VALUE	UNIT
Drain to Source Voltage	$V_{DS}$	100	Volts
Gate to Source Voltage	$V_{GS}$	$\pm 20$	Volts
Continuous Drain Current	$I_D$	56 <sup>1/</sup>	Amps
Operating and Storage Temperature	$T_{op} \& T_{stg}$	-55 to +150	°C
Thermal Resistance, Junction to Case	$R_{\eta JC}$	.83	°C/W
Total Device Dissipation	$P_D$	150 114	Watts
@ TC = 25°C			
@ TC = 55°C			

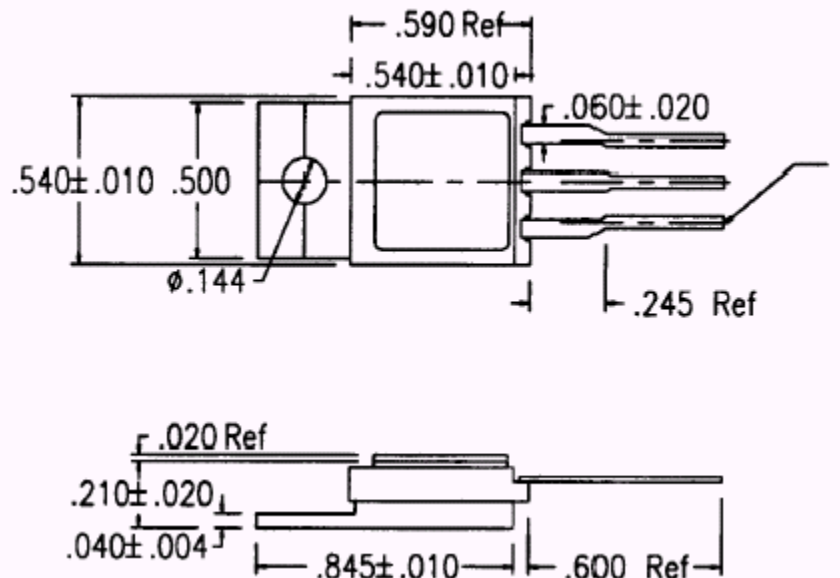
## CASE OUTLINE: TO-254 Ceramic

**Pin Out:**

**Pin 1: Drain**

**Pin 2: Source**

**Pin 3: Gate**



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

**DATA SHEET #: F00245B**

**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 = 45 A)		R <sub>DS(on)</sub>	-	0.025	0.03	Ω
On State Drain Current (VDS > ID(on) x RDS(on) Max, VGS = 10 V)		ID(on)	70	-	-	A
Gate Threshold Voltage (VDS = VGS, ID = 250μA)		VGS(th)	2.0	-	4.0	V
Forward Transconductance (VDS > ID(on) X RDS (on) Max, IDS = 45A)		gf <sub>s</sub>	20	40	-	Smho
Zero Gate Voltage Drain Current (V <sub>DS</sub> = 80% rated voltage, V <sub>GS</sub> = 0V) (V <sub>DS</sub> = 80% rated V <sub>DS</sub> , V <sub>GS</sub> = 0V, T <sub>A</sub> = 125°C)		IDSS	- -	- -	250 250	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 V 80% rated VDS Rated ID	Qg Qgs Qgd	- - -	110 30 50	140 40 80	nC
Turn on Delay Time Rise Time Turn off DelayTime Fall Time	VDD=50% rated VDS ID=70A RG=8Ω VGS=10V	td (on) tr td (off) tf	- - - -	25 15 80 15	40 180 100 40	nsec
Diode Forward Voltage (IS = rated ID, VGS = 0V, TJ = 25°C)		VSD	-	1.0	1.8	V
Diode Reverse Recovery Time Reverse Recovery Charge	TJ =25°C IF = ID di/dt = 100A/μsec	t <sub>rr</sub> QRR	-	125 0.3	200 -	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	VGS =0 Volts VDS =25 Volts f =1 MHz	Ciss Coss Crss	- - -	4100 1200 310	- - -	pF

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

**NOTES:**

1/ Maximum current limited by package, die rated at 75A.