



PRELIMINARY

SOLID STATE DEVICES, INC

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

SFF20N60M
SFF20N60Z

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 power package
- TX, TXV and Space Level screening available
- Replaces: IXTH20N60 Types

20 AMPS
600 VOLTS
0.40 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	I_D	20	Amps
Operating and Storage Temperature	T_{OP} & T_{STG}	-55 to +175	°C
Thermal Resistance, Junction to Case	R_{θJC}	0.83	°C/W
Total Device Dissipation @ TC=25°C Total Device Dissipation @ TC=55°C	P_D	150 114	Watts

PACKAGE OUTLINE: TO-254
PIN OUT:
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE

Dimensions: .545, .535, .150, .139, .260, .249, .050, .040, .685, .665, .800, .790, .555, .500, 3 x .045, .035, .150 BSC (2PL), .150 BSC

PACKAGE OUTLINE: TO-254Z
PIN OUT:
PIN 1: DRAIN
PIN 2: SOURCE
PIN 3: GATE

Dimensions: .810, .540, .270, .270, .135, 4 Plcs., .260, .249, .050, .540, .555, .505, 3 x .040, 2x150 BSC, .150 BSC

Available with Glass or Ceramic Seals. Contact Factory for details.

<p>NOTE: All specifications are subject to change without notification. SCD's for these devices should be reviewed by SSDI prior to release.</p>	<p>DATA SHEET #: F00201 B</p>	<p>MED</p>
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ELECTRICAL CHARACTERISTICS @ T_J=25 °C (Unless Otherwise Specified)

RATING	SYMBOL	MIN	TYP	MAX	UNIT
Drain to Source Breakdown Voltage (VGS=0 V, ID=250μA)	BVDSS	600	---	---	V
Drain to Source on State Resistance (VGS=10 V, ID=60% Rated ID)	RDS(on)	---	0.35	0.40	Ω
On State Drain Current (VDS > ID(on) X RDS(on) Max, VGS=10 V)	ID(on)	20	---	---	A
Gate Threshold Voltage (VDS=VGS, ID=250μA)	VGS(th)	2.0	---	4.5	V
Forward Transconductance (VDS > ID(on) X RDS(on) Max, IDS=60% rated ID)	gfs	12	18	---	S(Ω)
Zero Gate Voltage Drain Current (VDS=max rated voltage, VGS=0 V) (VDS=80% rated VDS, VGS=0 V, TA=125°C)	IDSS	---	---	200 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 80% rated VDS 50 %Rated ID Qg Qgs Qgd	---	150 29 60	170 40 85	nC
Turn on Delay Time Rise Time Turn Off Delay Time Fall Time	VDD=50% rated VDS 50% rated ID RG=6.2Ω td(on) tr td(off) tf	---	30 30 110 30	40 60 150 60	nsec
Diode Forward Voltage (IS=rated ID, VGS=0 V, T _J =25°C)	VSD	---	---	1.5	V
Diode Reverse Recovery Time Reverse Recovery Charge	T _J =25°C IF=10A di/dt=100 A/μsec t_{rr} QRR	---	---	800 ---	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	VGS=0 Volts VDS=25 Volts f = 1 MHz Ciss Coss Crss	---	4500 420 140	---	pF

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

