



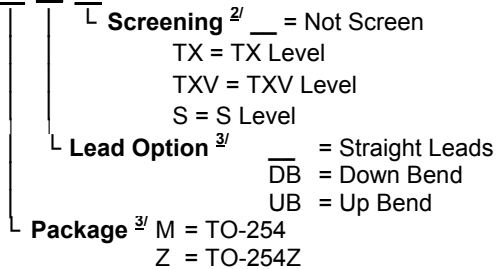
Solid State Devices, Inc.

14701 Firestone Blvd * La Mirada, Ca 90638
 Phone: (562) 404-4474 * Fax: (562) 404-1773
 ssdi@ssdi-power.com * www.ssdi-power.com

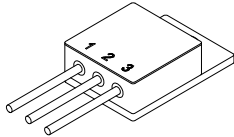
DESIGNER'S DATA SHEET

Part Number / Ordering Information ^{1/}

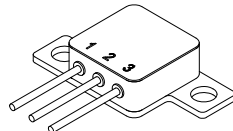
SFF20N60



TO-254 (M)



TO-254Z (Z)



SFF20N60M SFF20N60Z

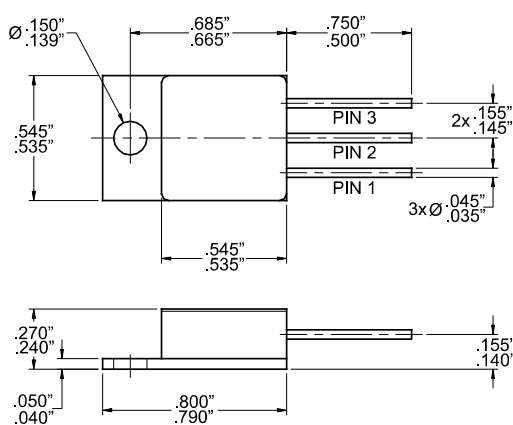
20 AMP / 600 Volts Typ 0.30 Ω N-Channel POWER MOSFET

Features:

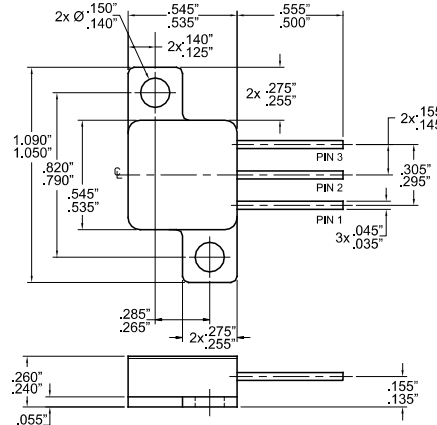
- Rugged Construction with Polysilicon Gate
- Low R_{DS(ON)} and High Transconductance
- Excellent High Temperature Stability
- Very Fast Switching Speed
- Fast Recovery and Superior dV/dt performance
- Increased Reverse Energy Capability
- Low Input and Transfer Capacitance for Easy Paralleling
- Hermetically Sealed, Isolated Surface Mount Power Package
- Ceramic Seals for Improved Hermeticity
- TX, TXV, S-Level screening available
- Replacement for IXTH20N60 Types

Maximum Ratings	Symbol	Value	Units
Drain – Source Voltage	V _{DS}	600	Volts
Gate – Source Voltage	V _{GS}	±30	Volts
Continues Drain Current	I _D	20	Amps
Avalanche Energy, repetitive	E _{AR}	0.03	J
Avalanche energy, single pulse	E _{AS}	1.0	J
Power Dissipation	P _D	150 114	W
		T _C = 25°C T _C = 55°C	
Operating & Storage Temperature	Top & Tstg	-55 to +175	°C
Maximum Thermal Resistance Junction to Case	R _{θJC}	0.83	°C/W

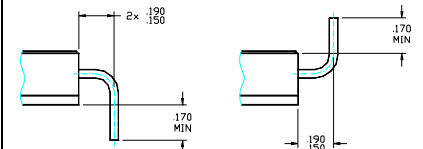
Case Outline: TO-254 (M)



Case Outline: TO-254Z (Z)



Optional Lead Bend Configuration



MDB & ZDB

MUB & ZUB

Suffixes

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

DATA SHEET #: F00201D

DOC



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SFF20N60M SFF20N60Z

Electrical Characteristics ^{3/}	Symbol	Min	Typ	Max	Units
Drain to Source Breakdown Voltage ($V_{GS} = 0V, I_D = 250\mu A$)	BV_{DSS}	600	—	—	Volts
Drain to Source On State Resistance ($V_{GS} = 10V, I_D = 60\%$ Rated ID)	$R_{DS(on)}$	—	0.30	0.35	Ω
On State Drain Current ($V_{DS} > I_{D(on)} \times R_{DS(on)}$ Max, $V_{GS} = 10V$)	$I_{D(on)}$	20	25	—	A
Gate Threshold Voltage ($V_{DS} = V_{GS}, I_D = 4mA$)	$V_{GS(th)}$	2.0	3.4	4.5	V
Gate to Source Leakage (At Rated V_{GS})	I_{GSS}	—	—	± 100	nA
Zero Gate Voltage Drain Current ($V_{GS} = 0V$)	I_{DSS}	—	—	25 1.0	μA mA
Forward Transconductance * ($V_{DS} > I_{D(on)} \times R_{DS(on)}$ Max, $I_{DS} = 50\%$ Rated ID)	g_{fs}	10	20	—	Mho
Total Gate Charge Gate to Source Charge Gate to Drain Charge	Q_g Q_{gs} Q_{gd}	—	100 23 45	170 40 85	nC
Turn on Delay Time Rise Time Turn on Delay Time Fall Time	$t_{d(on)}$ t_r $t_{d(off)}$ t_f	—	28 30 80 25	40 60 150 60	nsec
Diode Forward Voltage * ($I_S =$ Rated $I_D, V_{GS} = 0V, T_J = 25^\circ C$)	V_{SD}	—	0.875	1.5	V
Diode Reverse Recovery Time Reverse Recovery Charge ($I_F = 10A, di/dt = 100A/\mu sec, T_J = 25^\circ C$)	t_{rr} Q_{RR}	—	240 1.3	800 —	nsec μC
Input Capacitance Output Capacitance Reverse Transfer Capacitance	C_{iss} C_{oss} C_{rss}	—	4000 400 120	— — —	pF

NOTES:

- * Pulse test: pulse width = 300 μ sec, duty cycle = 2%
- 1/ For ordering information, price, and availability - contact factory.
- 2/ Screening based on MIL-PRF-19500. Screening flows available on request.
- 3/ Unless otherwise specified, all electrical characteristics @25°C.

Available Part Numbers:

SFF20N60M; SFF20N60MDB; SFF20N60MUB;
 SFF20N60Z; SFF20N60ZDB; SFF20N60ZUB;

PIN ASSIGNMENT (Standard)

Package	Drain	Source	Gate
TO-254 (M)	Pin 1	Pin 2	Pin 3
TO-254Z (Z)	Pin 1	Pin 2	Pin 3

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