TSA20N50M

500V N-Channel MOSFET

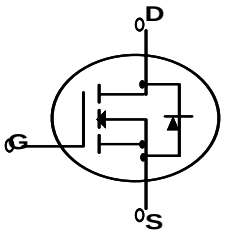
General Description

This Power MOSFET is produced using Truesemi's advanced planar stripe DMOS technology.
This advanced technology has been especially tailored to minimize on-state resistance, provide superior switching performance, and withstand high energy pulse in the avalanche and commutation mode. These devices are well suited for high efficiency switched mode power supplies, active power factor correction based on half bridge topology.

Features

- 20.0A, 500V, $R_{DS(on)}$ = 0.26Ω @V_{GS} = 10 V
- Low gate charge (typical 70nC)
- High ruggedness
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability

TO-3P or TO247



Absolute Maximum Ratings

T_C = 25°Cunless otherwise noted

Symbol	Parameter		TSA20N50M	Units
V_{DSS}	Drain-Source Voltage		500	V
I_D	Drain Current - Continuous (T_C = 25°C)		20	A
	- Continuous (T_C = 100°C)		13	A
I_{DM}	Drain Current - Pulsed	(Note 1)	80	A
V_{GSS}	Gate-Source Voltage		± 30	V
E_{AS}	Single Pulsed Avalanche Energy	(Note 2)	1110	mJ
E_{AR}	Repetitive Avalanche Energy	(Note 1)	28	mJ
dv/dt	Peak Diode Recovery dv/dt	(Note 3)	4.5	V/ns
P_D	Power Dissipation (T_C = 25°C)		280	W
	- Derate above 25°C		2.3	W/°C
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	°C
T_L	Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds		300	°C

* Drain current limited by maximum junction temperature.

Thermal Characteristics

Symbol	Parameter	TYP	MAX	Units
$R_{\theta JC}$	Thermal Resistance, Junction-to-Case	-	0.44	°C/W
$R_{\theta CS}$	Thermal Resistance, Case-to-Sink Typ.	0.24	-	°C/W
$R_{\theta JA}$	Thermal Resistance, Junction-to-Ambient	-	40	°C/W