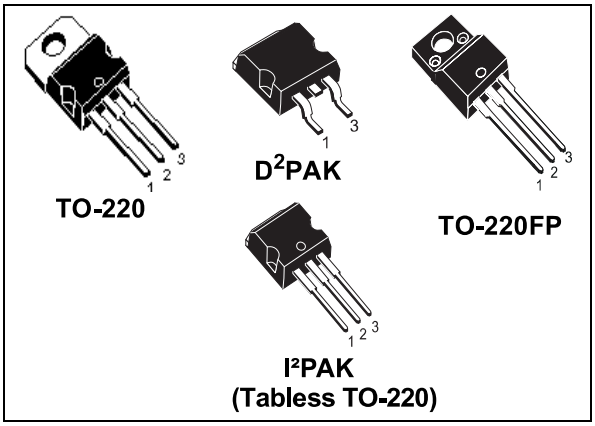
STP20NM50 - STP20NM50FP
STB20NM50 - STB20NM50-1

N-CHANNEL 500V - 0.20Ω - 20A TO-220/FP/D²PAK/I²PAK
MDmesh™ Power MOSFET

TYPE	V_{DSS}	$R_{DS(on)}$	I_D
STP20NM50/FP	500V	<0.25Ω	20 A
STB20NM50	500V	<0.25Ω	20 A
STB20NM50-1	500V	<0.25Ω	20 A

- TYPICAL $R_{DS}(on)$ = 0.20Ω
- HIGH dv/dt AND AVALANCHE CAPABILITIES
- 100% AVALANCHE TESTED
- LOW INPUT CAPACITANCE AND GATE CHARGE
- LOW GATE INPUT RESISTANCE
- TIGHT PROCESS CONTROL AND HIGH MANUFACTURING YIELDS



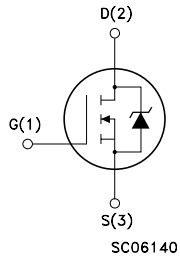
DESCRIPTION

The MDmesh™ is a new revolutionary MOSFET technology that associates the Multiple Drain process with the Company's PowerMESH™ horizontal layout. The resulting product has an outstanding low on-resistance, impressively high dv/dt and excellent avalanche characteristics. The adoption of the Company's proprietary strip technique yields overall dynamic performance that is significantly better than that of similar competition's products.

APPLICATIONS

The MDmesh™ family is very suitable for increasing power density of high voltage converters allowing system miniaturization and higher efficiencies.

INTERNAL SCHEMATIC DIAGRAM



ABSOLUTE MAXIMUM RATINGS

Symbol	Parameter	Value		Unit
		STP(B)20NM50(-1)	STP20NM50FP	
V_{DS}	Drain-source Voltage (V_{GS} = 0)	500		V
V_{DGR}	Drain-gate Voltage (R_{GS} = 20 kΩ)	500		V
V_{GS}	Gate- source Voltage	±30		V
I_D	Drain Current (continuous) at T_C = 25°C	20	20(*)	A
I_D	Drain Current (continuous) at T_C = 100°C	12.6	12.6(*)	A
I_{DM} (●)	Drain Current (pulsed)	80	80(*)	A
P_{TOT}	Total Dissipation at T_C = 25°C	192	45	W
	Derating Factor	1.2	0.36	W/°C
dv/dt(1)	Peak Diode Recovery voltage slope	15		V/ns
V_{ISO}	Insulation Winthstand Voltage (DC)	--	2000	V
T_{stg}	Storage Temperature	–65 to 150		°C
T_j	Max. Operating Junction Temperature	150		°C

(•)Pulse width limited by safe operating area

(1)I_{SD} ≤20A, di/dt ≤400A/µs, V_{DD} ≤ $V_{(BR)DSS}$, T_j ≤ T_{JMAX}.

(*)Limited only by maximum temperature allowed