



HIGH-VOLTAGE POWER MOSFETS

SiHS20N50C-E3



500 V MOSFETs

N-Channel Planar FET Gen. 6.4 Cell Technology
in Super TO-247 Package

KEY BENEFITS

- 20 A, 500 V, $R_{DS(on)}$ max. = 270 m Ω at $V_{GS} = 10$ V
- Improved gate charge: Q_g max. = 76 nC
- Low FOM: $R_{DS(on)} \times Q_g = 20.52 \Omega nC$
- High peak current capability
- Compliant to RoHS Directive 2002/95/EC

APPLICATIONS

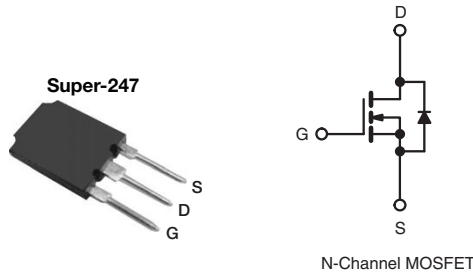
- PFC circuits
- PWM half bridges
- LLC topologies

Power MOSFET

PRODUCT SUMMARY		
V_{DS} (V) at T_J max.	560	
$R_{DS(on)}$ (Ω)	$V_{GS} = 10$ V	0.270
Q_g (Max.) (nC)	76	
Q_{gs} (nC)	21	
Q_{gd} (nC)	34	
Configuration	Single	

FEATURES

- Low Figure-of-Merit $R_{on} \times Q_g$
- 100 % Avalanche Tested
- High Peak Current Capability
- dV/dt Ruggedness
- Improved t_{rr}/Q_{rr}
- Improved Gate Charge
- High Power Dissipations Capability
- Compliant to RoHS Directive 2002/95/EC


RoHS
COMPLIANT


ORDERING INFORMATION	
Package	Super-247
Lead (Pb)-free	SiHS20N50C-E3

ABSOLUTE MAXIMUM RATINGS ($T_C = 25$ °C, unless otherwise noted)			
PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V_{DS}	500	V
Gate-Source Voltage	V_{GS}	± 30	
Continuous Drain Current ($T_J = 150$ °C) ^e	V_{GS} at 10 V	$T_C = 25$ °C	A
		$T_C = 100$ °C	
Pulsed Drain Current ^a	I_{DM}	80	
Linear Derating Factor		1.8	W/°C
Single Pulse Avalanche Energy ^b	E_{AS}	361	mJ
Maximum Power Dissipation	P_D	250	W
Peak Diode Recovery dV/dt ^c	dV/dt	5	V/ns
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to + 150	°C
Soldering Recommendations (Peak Temperature)	for 10 s	300 ^d	

Notes

- Repetitive rating; pulse width limited by maximum junction temperature.
- $V_{DD} = 50$ V, starting $T_J = 25$ °C, $L = 2.5$ mH, $R_g = 25$ Ω , $I_{AS} = 17$ A.
- $I_{SD} \leq 18$ A, $dI/dt \leq 380$ A/ μ s, $V_{DD} \leq V_{DS}$, $T_J \leq 150$ °C.
- 1.6 mm from case.
- Limited by maximum junction temperature.

THERMAL RESISTANCE RATINGS				
PARAMETER	SYMBOL	TYP.	MAX.	UNIT
Maximum Junction-to-Ambient	R_{thJA}	-	40	°C/W
Maximum Junction-to-Case (Drain)	R_{thJC}	-	0.5	

Revision 31-Jan-11

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