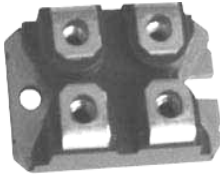
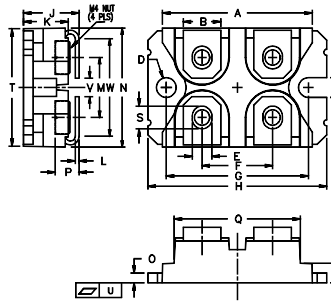


# SMOS44/48N50D2, SMOS44/48N50D3

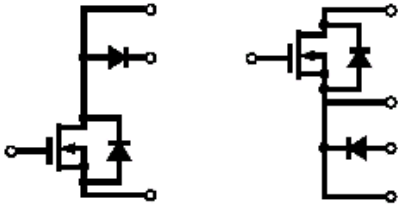
## Power MOSFETs



Dimensions SOT-227(ISOTOP)



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	37.80	38.20	1.489	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004
V	3.30	4.57	0.130	0.180
W	0.780	0.830	0.031	0.033



	Symbol	Test Conditions	Maximum Ratings	Unit	
HIPerFET MOSFET	V <sub>DSS</sub>	T <sub>J</sub> =25°C to 150°C	500	V	
	V <sub>DGR</sub>	T <sub>J</sub> =25°C to 150°C; R <sub>GS</sub> =1MΩ	500		
	V <sub>GS</sub>	Continuous	±20	V	
	V <sub>GSM</sub>	Transient	±30		
	I <sub>D25</sub>	T <sub>C</sub> =25°C	44N50	44	A
			48N50	48	
	I <sub>DM</sub>	T <sub>C</sub> =25°C; pulse width limited by max. T <sub>JM</sub>	44N50	176	A
			48N50	192	
	I <sub>AR</sub>	T <sub>C</sub> =25°C	24	A	
E <sub>AR</sub>	Repetitive	30	mJ		
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> ; -di/dt ≤ 100A/us; V <sub>DD</sub> ≤ V <sub>DSS</sub> T <sub>J</sub> ≤ 150°C; R <sub>G</sub> =2Ω	5	V/ns		
P <sub>D</sub>	T <sub>C</sub> =25°C	520	W		
DIODE	V <sub>RRM</sub>		600	V	
	I <sub>FAVM</sub>	T <sub>C</sub> =70°C; rectangular; d=0.5	60	A	
	I <sub>FRM</sub>	t <sub>p</sub> < 10us; pulse width limited by T <sub>J</sub>	800	A	
	P <sub>D</sub>	T <sub>C</sub> =25°C	180	W	
CASE	T <sub>J</sub>		-40...+150	°C	
	T <sub>JM</sub>		150		
	T <sub>stg</sub>		-40...+150		
	V <sub>ISOL</sub>	50/60 Hz, RMS t=1 min I <sub>ISOL</sub> ≤ 1 mA t=1 s	2500	V~	
			3000		
M <sub>d</sub>	Mounting torque	1.5/13	Nm/lb.in.		
	Terminal connection torque(M4)	1.5/13			
Weight		30	g		

# SMOS44/48N50D2, SMOS44/48N50D3

## Power MOSFETs

(T<sub>J</sub>=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
V <sub>DSS</sub>	V <sub>GS</sub> =0V; I <sub>D</sub> =1 mA	500			V
V <sub>GS(th)</sub>	V <sub>DS</sub> =V <sub>GS</sub> ; I <sub>D</sub> =8 mA	2		4	V
I <sub>GSS</sub>	V <sub>GS</sub> =±20V <sub>DC</sub> ; V <sub>DS</sub> =0			±200	nA
I <sub>DSS</sub>	V <sub>DS</sub> =0.8V <sub>DSS</sub> ; T <sub>J</sub> =25°C V <sub>GS</sub> =0V; T <sub>J</sub> =125°C			400	uA
				2	mA
R <sub>DS(on)</sub>	V <sub>GS</sub> =10V; I <sub>D</sub> =0.5I <sub>D25</sub> 44N50 48N50 Pulse test, t ≤ 300us, duty cycle d ≤ 2%			0.12	Ω
				0.10	Ω

(T<sub>J</sub>=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
g <sub>ts</sub>	V <sub>DS</sub> =10V; I <sub>D</sub> =0.5I <sub>D25</sub> ; pulse test	22	42		S
C <sub>ies</sub>	V <sub>GS</sub> =0V; V <sub>DS</sub> =25V; f=1MHz		8400		pF
C <sub>oes</sub>			900		
C <sub>res</sub>			280		
Q <sub>g(on)</sub>	V <sub>GS</sub> =10V; V <sub>DS</sub> =0.5V <sub>DSS</sub> ; I <sub>D</sub> =0.5I <sub>D25</sub>		270		nC
Q <sub>gs</sub>			60		
Q <sub>gd</sub>			135		
t <sub>d(on)</sub>	V <sub>GS</sub> =10V; V <sub>DS</sub> =0.5V <sub>DSS</sub> ; I <sub>D</sub> =0.5I <sub>D25</sub> R <sub>G</sub> =1Ω (External)		30		ns
t <sub>r</sub>			60		ns
t <sub>d(off)</sub>			100		ns
t <sub>f</sub>			30		ns
R <sub>thJC</sub>			0.24		K/W
R <sub>thCK</sub>			0.05		K/W

### Ultra-fast Diode

(T<sub>J</sub>=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
I <sub>R</sub>	T <sub>J</sub> =25°C; V <sub>R</sub> =V <sub>R<sub>RM</sub></sub> V <sub>R</sub> =0.8V <sub>R<sub>RM</sub></sub> T <sub>J</sub> =125°C; V <sub>R</sub> =0.8V <sub>R<sub>RM</sub></sub>			200	uA
				100	uA
				14	mA
V <sub>F</sub>	I <sub>F</sub> =7A; V <sub>GS</sub> =0V; T <sub>J</sub> =150°C Pulse test, t ≤ 300us, duty cycle d ≤ 2%; T <sub>J</sub> =25°C			1.5	V
				1.8	
t <sub>rr</sub>	I <sub>L</sub> =1A; di/dt = - 200A/us; V <sub>R</sub> =30V; T <sub>J</sub> =25°C		35	50	ns
I <sub>RM</sub>	I <sub>F</sub> =60A; di/dt = - 480A/us; V <sub>R</sub> =350V; T <sub>J</sub> =100°C		19	21	A
R <sub>thJC</sub>				0.7	K/W
R <sub>thJK</sub>			0.05		K/W

