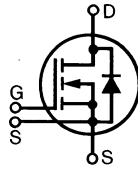
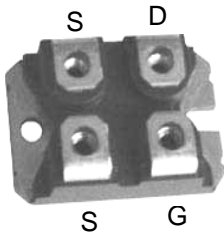
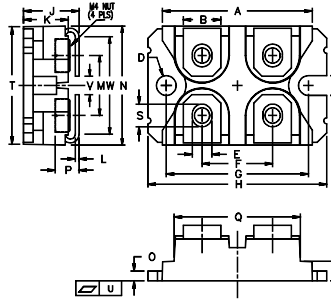


# SMOS44N50, SMOS48N50

## 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

G=Gate, D=Drain, S=Source

Symbol	Test Conditions	Maximum Ratings	Unit	
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	
V <sub>GS</sub>	Continuous	±20	V	
V <sub>GSM</sub>	Transient	±30	V	
I <sub>D25</sub>	T <sub>C</sub> =25°C	44N50 48N50	44 48	A
I <sub>DM</sub>	T <sub>C</sub> =25°C; pulse width limited by T <sub>JM</sub>	44N50 48N50	176 192	A
I <sub>AR</sub>	T <sub>C</sub> =25°C		24	A
E <sub>AR</sub>	T <sub>C</sub> =25°C		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
T <sub>J</sub>		-55...+150		°C
T <sub>JM</sub>		150		°C
T <sub>stg</sub>		-55...+150		°C
T <sub>L</sub>	1.6mm(0.063 in.) from case for 10s	-		°C
V <sub>ISOL</sub>	50/60Hz,RMS t=1 min I <sub>ISOL</sub> ≤ 1mA t=1 s	2500 3000		V~
M <sub>d</sub>	Mounting torque Terminal connection torque	1.5/13 1.5/13		Nm/lb.in.
Weight		30		g

# SMOS44N50, SMOS48N50

## Power MOSFETs

( $T_J=25^{\circ}\text{C}$ , unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
$V_{DSS}$	$V_{GS}=0\text{V}; I_D=1\text{ mA}$	500			V
$V_{GS(th)}$	$V_{DS}=V_{GS}; I_D=8\text{ mA}$	2		4	V
$I_{GSS}$	$V_{GS}=\pm 20\text{V}_{DC}; V_{DS}=0$			$\pm 200$	nA
$I_{DSS}$	$V_{DS}=0.8V_{DSS}; T_J=25^{\circ}\text{C}$ $V_{GS}=0\text{V}; T_J=125^{\circ}\text{C}$			400	$\mu\text{A}$
				2	mA
$R_{DS(on)}$	$V_{GS}=10\text{V}; I_D=0.5I_{D25}$ 44N50 48N50 Pulse test, $t \leq 300\mu\text{s}$ , duty cycle $d \leq 2\%$			0.12	$\Omega$
				0.10	$\Omega$

( $T_J=25^{\circ}\text{C}$ , unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
$g_{ts}$	$V_{DS}=10\text{V}; I_D=0.5I_{D25}$ ; pulse test	22	42		S
$C_{ies}$	$V_{GS}=0\text{V}; V_{DS}=25\text{V}; f=1\text{MHz}$		8400		$\text{pF}$
$C_{oes}$			900		
$C_{res}$			280		
$Q_{g(on)}$	$V_{GS}=10\text{V}; V_{DS}=0.5V_{DSS}; I_D=0.5I_{D25}$		270		nC
$Q_{gs}$			60		
$Q_{gd}$			135		
$t_{d(on)}$	$V_{GS}=10\text{V}; V_{DS}=0.5V_{DSS}; I_D=0.5I_{D25}$ $R_G=1\Omega$ (External)		30		ns
$t_r$			60		ns
$t_{d(off)}$			100		ns
$t_f$			30		ns
$R_{thJC}$				0.24	K/W
$R_{thCK}$			0.05		K/W

### Source-Drain Diode

( $T_J=25^{\circ}\text{C}$ , unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
$I_S$	$V_{GS}=0\text{V}$			48	A
$I_{SM}$	Repetitive; pulse width limited by $T_{JM}$			192	A
$V_{SD}$	$I_F=100\text{A}; V_{GS}=0\text{V};$ Pulse test, $t \leq 300\mu\text{s}$ , duty cycle $d \leq 2\%$			1.5	V
$t_{rr}$	$I_F=I_S; -di/dt=100\text{A}/\mu\text{s}; V_R=100\text{V};$			250	ns
$Q_{RM}$			TBD		$\mu\text{C}$
$I_{RM}$			20		A