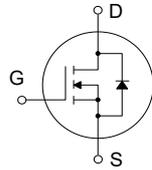
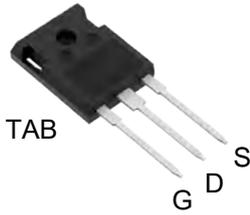


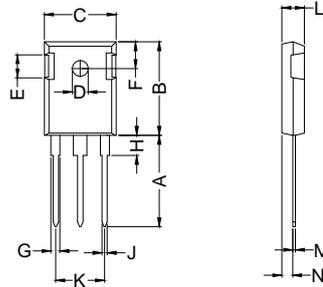
SMOS21N50B2

Power MOSFETs

Dimensions TO-247AD



G=Gate, D=Drain,
S=Source, TAB=Drain



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.620	0.640
ØD	3.15	3.65	0.124	0.144
E	4.32	5.49	0.170	0.216
F	5.40	6.30	0.213	0.248
G	1.65	2.18	0.065	0.086
H	3.80	4.50	0.150	0.177
J	1.00	1.40	0.039	0.055
K	10.80	11.10	0.425	0.437
L	4.70	5.30	0.185	0.209
M	0.40	0.80	0.016	0.031
N	1.50	2.49	0.059	0.098

Symbol	Test Conditions	Maximum Ratings	Unit
V _{DSS}	T _J =25°C to 150°C	500	V
V _{DGR}	T _J =25°C to 150°C; R _{GS} =1MΩ	500	
V _{GS}	Continuous	±20	V
V _{GSM}	Transient	±30	
I _{D25}	T _C =25°C	21	A
I _{DM}	T _C =25°C; pulse width limited by T _{JM}	84	A
I _{AR}	T _C =25°C	21	A
E _{AR}	T _C =25°C	30	mJ
dv/dt	I _S ≤ I _{DM} ; di/dt ≤ 100A/us; V _{DD} ≤ V _{DSS} T _J ≤ 150°C; R _G = 2Ω	5	V/ns
P _D	T _C =25°C	300	W
T _J		-55...+150	°C
T _{JM}		150	
T _{stg}		-55...+150	
T _L	1.6mm(0.062 in.) from case for 10s	300	°C
M _d	Mounting torque	1.13/10	Nm/lb.in.
Weight	typical	6	g

Sirectifier®

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(T_J=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
V _{DSS}	V _{GS} =0V; I _D =250μA	500			V
V _{GS(th)}	V _{DS} =V _{GS} ; I _D =4mA	2		4	V
I _{GSS}	V _{GS} =±20V _{DC} ; V _{DS} =0			±100	nA
I _{DSS}	V _{DS} =0.8V _{DSS} ; T _J =25°C			200	μA
	V _{GS} =0V; T _J =125°C			1	mA

(T_J=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
R _{DS(on)}	V _{GS} =10V; I _D =0.5I _{D25} Pulse test, t≤300μs, duty cycle≤2%			0.25	Ω
g _{ts}	V _{DS} =10V; I _D =0.5I _{D25} ; pulse test	11	21		S
C _{ies} C _{oes} C _{res}	V _{GS} =0V; V _{DS} =25V; f=1MHz		4200 450 135		pF
Q _{g(on)} Q _{gs} Q _{gd}	V _{GS} =10V; V _{DS} =0.5V _{DSS} ; I _D =0.5I _{D25}		135 28 62	160 40 85	nC
t _{d(on)} t _r t _{d(off)} t _f	V _{GS} =10V; V _{DS} =0.5V _{DSS} ; I _D =0.5I _{D25} R _G =2Ω (External)		16 33 65 30	25 45 80 40	ns ns ns ns
R _{thJC}				0.44	K/W
R _{thCK}			0.27		K/W

Source-Drain Diode

(T_J=25°C, unless otherwise specified)

Symbol	Test Conditions	Characteristic Values			Unit
		min.	typ.	max.	
I _S	V _{GS} =0V			21	A
I _{SM}	Repetitive; pulse width limited by T _{JM}			84	A
V _{SD}	I _F =I _S ; V _{GS} =0V; Pulse test, t≤300μs, duty cycle d≤2%			1.5	V
t _{rr}	I _F =I _S ; T _J =25°C			250	ns
Q _{RM}	-di/dt=100A/μs; T _J =125°C			400	ns
I _{RM}	V _R =100V; T _J =25°C		1		μC
	T _J =125°C		2		μC
I _{RM}	T _J =25°C		10		A
	T _J =125°C		15		A



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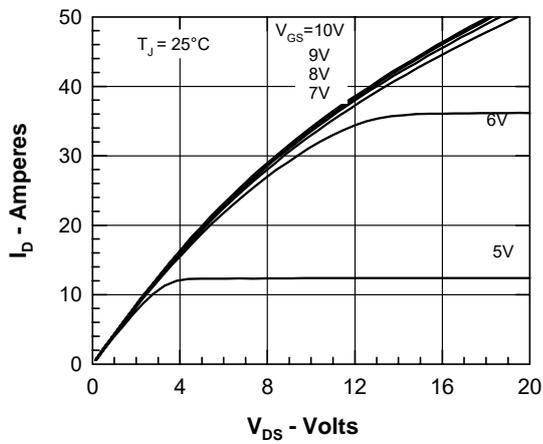


Figure 1. Output Characteristics at 25°C

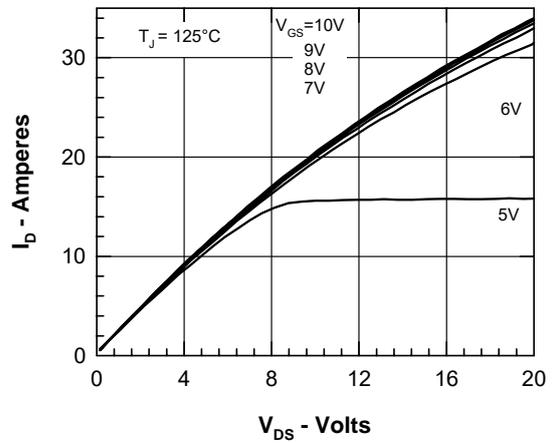


Figure 2. Output Characteristics at 125°C

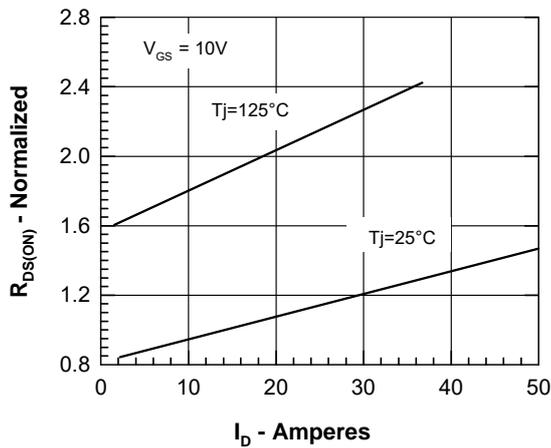


Figure 3. $R_{DS(on)}$ normalized to value at $I_D = 12A$

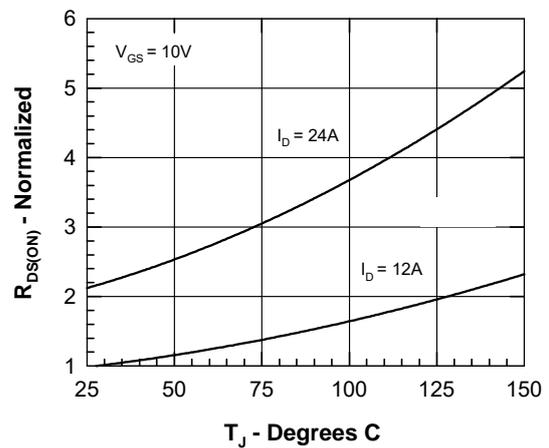


Figure 4. $R_{DS(on)}$ normalized to value at $I_D = 12A$

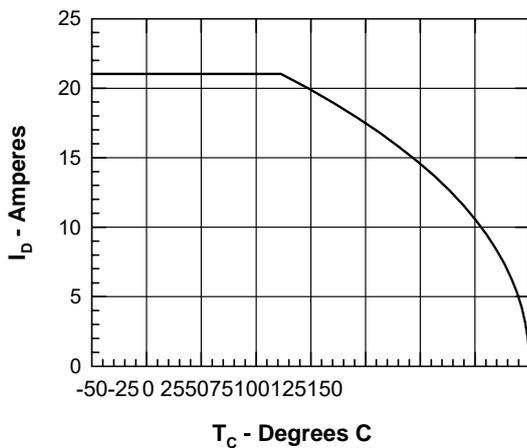


Figure 5. Drain Current vs. Case Temperature

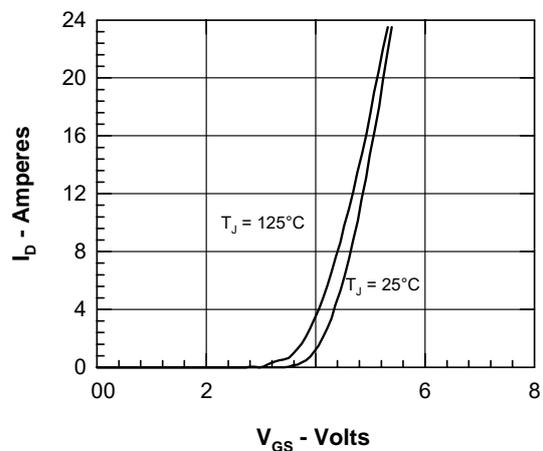
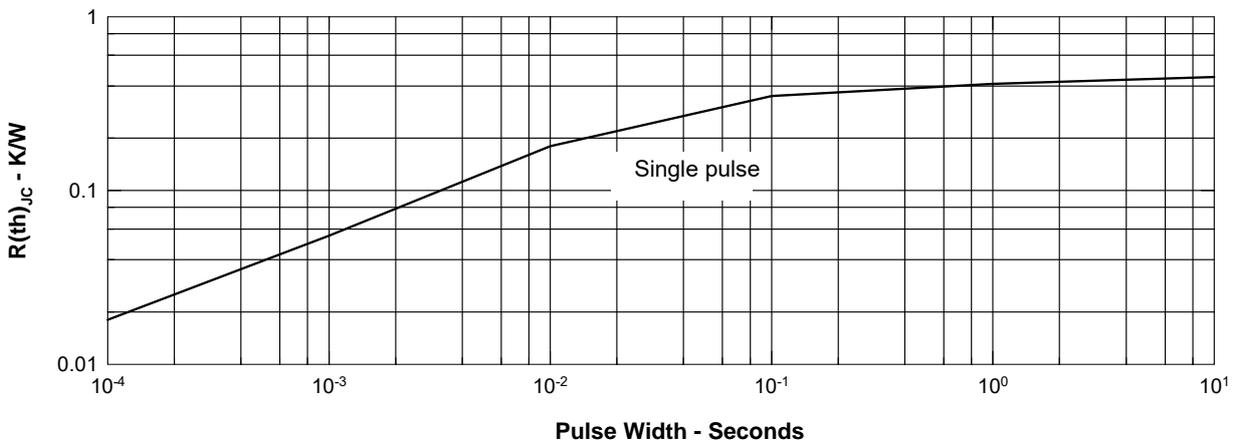
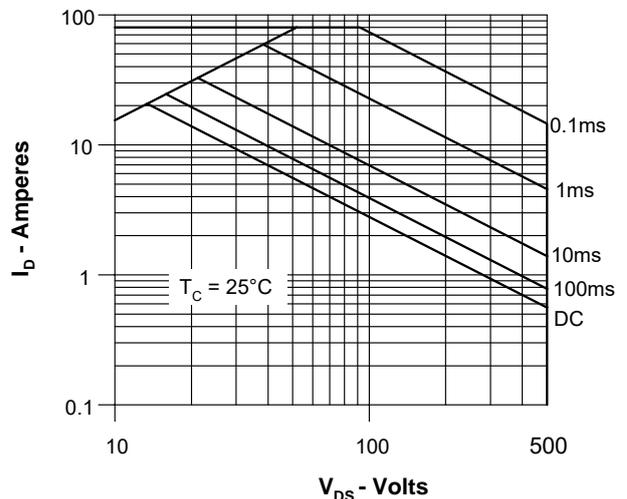
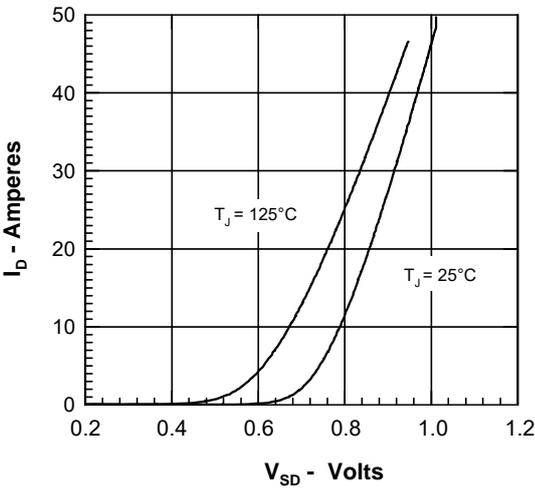
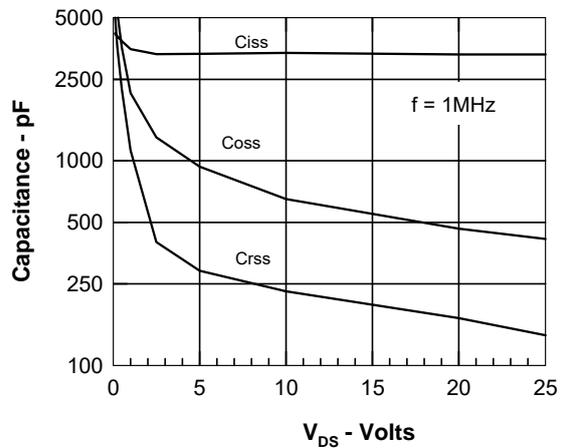
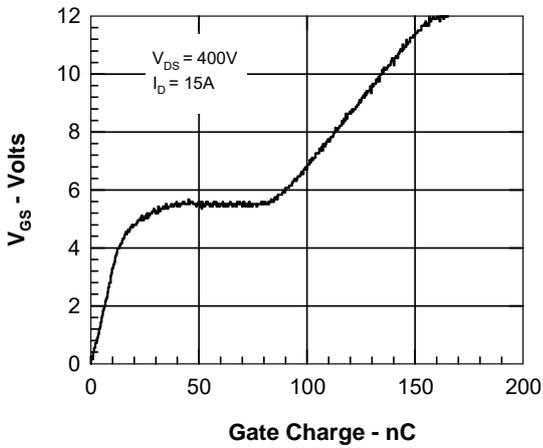


Figure 6. Admittance Curves

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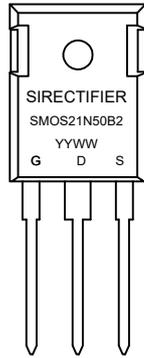
SMOS21N50B2

Power MOSFETs

Marking

SMOS21N50B2

(TO-247AD)



Company Logo
Part Number
Lot No.



Ordering Information

Part Number	Package	Shipping	Marking Code
SMOS21N50B2	TO-247AD	30pcs / Tube	SMOS21N50B2