

MSKSEMI 美森科

SEMICONDUCTOR



ESD



TVS



TSS



MOV



GDT



PLED

AOD4184A-MS

Product specification

FEATURES

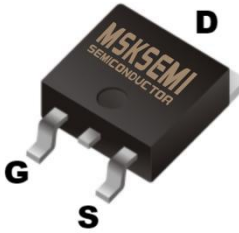
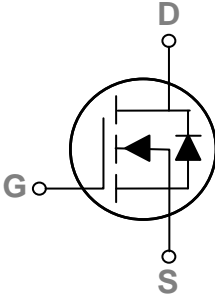

- 40V, 50A, $R_{DS(ON)} = 5.5m\Omega @ V_{GS} = 10V$
- Improved dv/dt capability
- Fast switching
- Green Device Available

Applications

- MB / VGA / Vcore
- POL Applications
- SMPS 2nd SR

BVDSS	R _{DS(ON)}	ID
40V	5.5mΩ	50A

Reference News

PACKAGE OUTLINE	Pin Configuration	Marking
 <p>TO-252</p>		

Absolute Maximum Ratings $T_c=25^{\circ}C$ unless otherwise noted

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-Source Voltage	± 20	V
I_D	Drain Current - Continuous ($T_c=25^{\circ}C$)	50	A
	Drain Current - Continuous ($T_c=100^{\circ}C$)	38	A
I_{DM}	Drain Current - Pulsed ¹	150	A
P_D	Power Dissipation ($T_c=25^{\circ}C$)	50	W
	Power Dissipation - Derate above $25^{\circ}C$	0.496	W/ $^{\circ}C$
T_{STG}	Storage Temperature Range	-55 to 150	$^{\circ}C$
T_J	Operating Junction Temperature Range	-55 to 150	$^{\circ}C$

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	55	$^{\circ}C/W$
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	2.01	$^{\circ}C/W$

Electrical Characteristics (T_J=25 °C, unless otherwise noted)
Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV _{DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V , I _D =250uA	40	---	---	V
ΔBV _{DSS} /ΔT _J	BV _{DSS} Temperature Coefficient	Reference to 25°C , I _D =1mA	---	0.03	---	V/°C
Drain-Source Leakage Current		V _{DS} =40V , V _{GS} =0V , T _J =25°C	---	---	1	uA
		V _{DS} =32V , V _{GS} =0V , T _J =125°C	---	---	10	uA
I _{GSS}	Gate-Source Leakage Current	V _{GS} = ±20V , V _{DS} =0V	---	---	±100	nA

On Characteristics

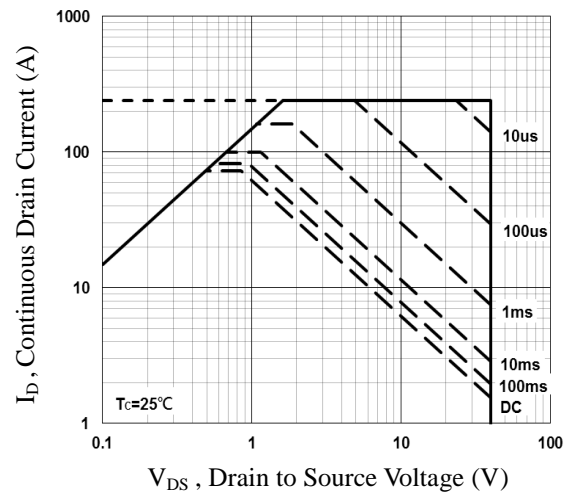
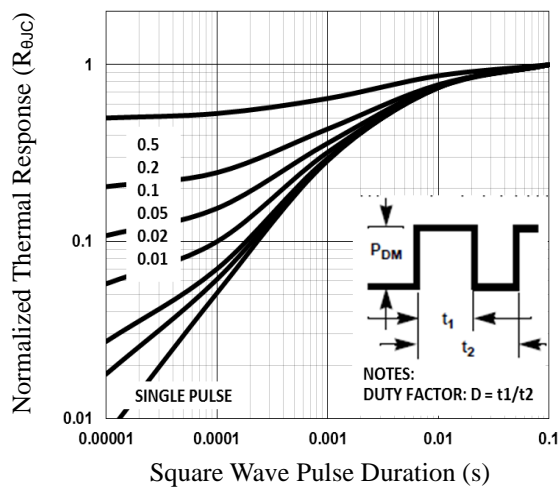
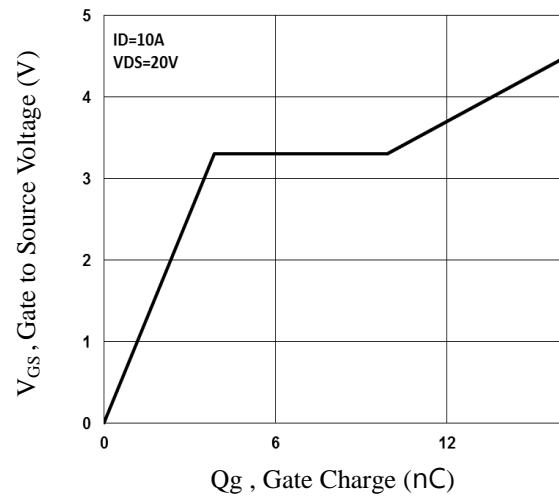
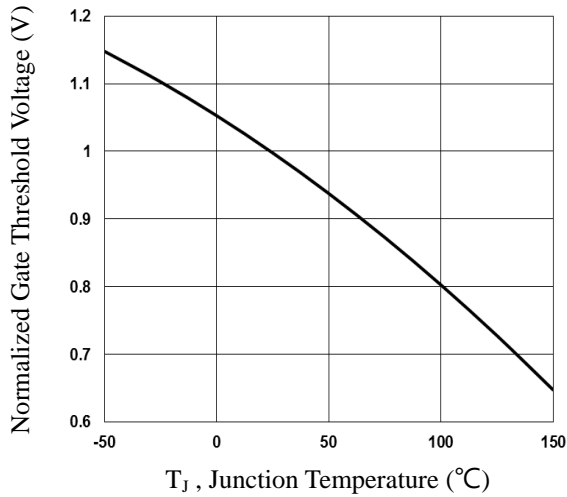
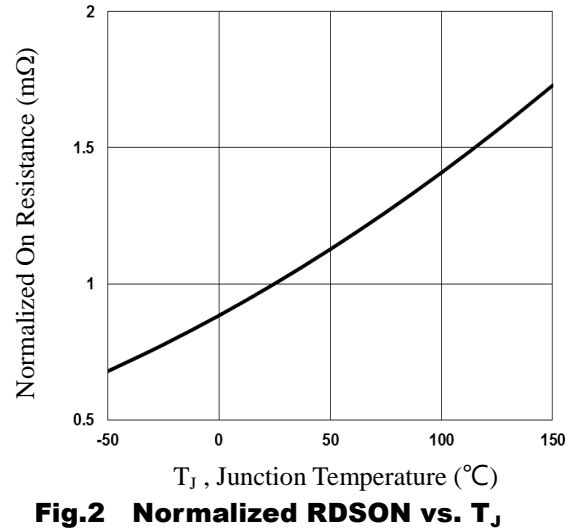
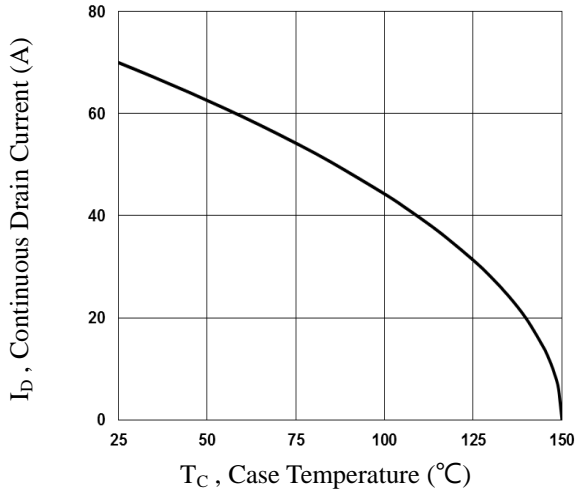
Static Drain-Source On-Resistance ³		V _{GS} =10V , I _D =10A	---	5.5	8.0	mΩ
		V _{GS} =4.5V , I _D =5A	---	7.5	10	mΩ
V _{GS(th)}	Gate Threshold Voltage	V _{GS} =V _{DS} , I _D =250uA	1.0	1.5	2.5	V
ΔV _{GS(th)}	V _{GS(th)} Temperature Coefficient		---	-5	---	mV/°C
g _{fs}	Forward Transconductance	V _{DS} =10V , I _D =3A	---	16	---	S

Dynamic Characteristics

Q _g	Total Gate Charge ^{3,4}	V _{DS} =20V , V _{GS} =4.5V , I _D =10A	---	16.2	---	nC
Q _{gs}	Gate-Source Charge ^{3,4}		---	3.85	---	
Q _{gd}	Gate-Drain Charge ^{3,4}		---	6.05	---	
T _{d(on)}	Turn-On Delay Time ^{3,4}	V _{DD} =15V , V _{GS} =10V , R _G =6Ω I _b =1A	---	13.6	---	ns
T _r	Rise Time ^{3,4}		---	2.5	---	
T _{d(off)}	Turn-Off Delay Time ^{3,4}		---	68	---	
T _f	Fall Time ^{3,4}		---	5	---	
C _{iss}	Input Capacitance	V _{DS} =25V , V _{GS} =0V , F=1MHz	---	1540	---	pF
C _{oss}	Output Capacitance		---	171	---	
C _{rss}	Reverse Transfer Capacitance		---	115	---	
R _g	Gate resistance	V _{GS} =0V, V _{DS} =0V, F=1MHz	---	1.2	---	Ω

Drain-Source Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I _S	Continuous Source Current	V _G =V _D =0V , Force Current	---	---	50	A
I _{SM}	Pulsed Source Current ³		---	---	100	A
V _{SD}	Diode Forward Voltage ³	V _{GS} =0V , I _S =1A , T _J =25°C	---	---	1.2	V



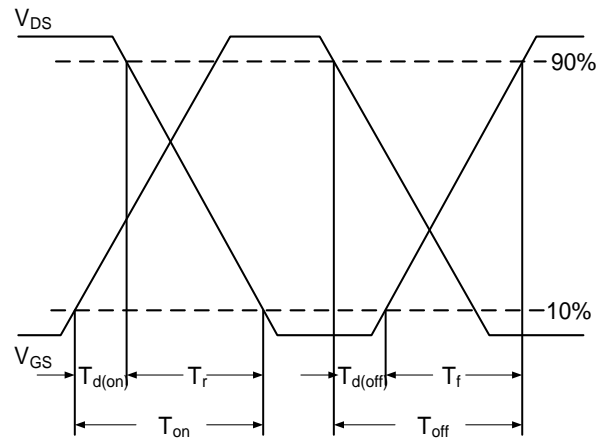
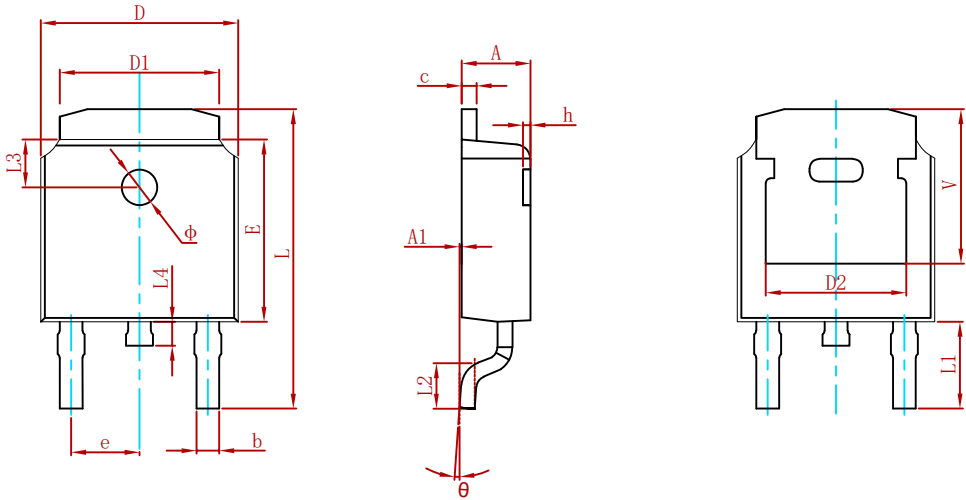


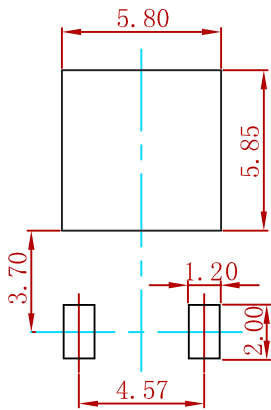
Fig.7 Switching Time Waveform

PACKAGE MECHANICAL DATA



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	2.200	2.400	0.087	0.094
A1	0.000	0.127	0.000	0.005
b	0.635	0.770	0.025	0.030
c	0.460	0.580	0.018	0.023
D	6.500	6.700	0.256	0.264
D1	5.100	5.460	0.201	0.215
D2	4.830 REF.		0.190 REF.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.712	10.312	0.382	0.406
L1	2.900 REF.		0.114 REF.	
L2	1.400	1.700	0.055	0.067
L3	1.600 REF.		0.063 REF.	
L4	0.600	1.000	0.024	0.039
Φ	1.100	1.300	0.043	0.051
θ	0°	8°	0°	8°
h	0.000	0.300	0.000	0.012
V	5.250 REF.		0.207 REF.	

Suggested Pad Layout



Note:
1.Controlling dimension:in millimeters.
2.General tolerance:± 0.05mm.
3.The pad layout is for reference purposes only.

REELSPECIFICATION

P/N	PKG	QTY
AOD4184A-MS	TO-252	2500

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