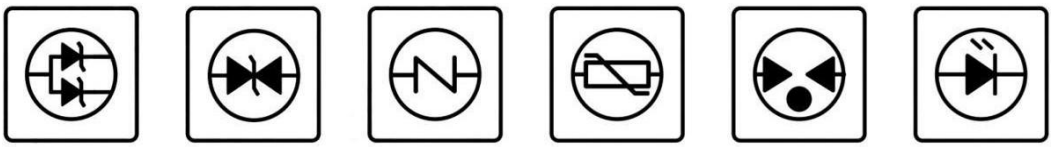
MSKSEMI 美森科
SEMICONDUCTOR



AOD403

Product specification

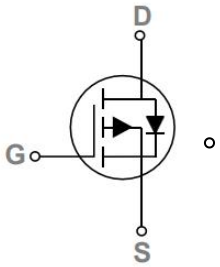
General Features

- -30 V,-70A, RDS(ON) =5.5mΩ@VGS = - 10V
- Fast switching
- Green Device Available

Application

- MB / VGA / Vcore
- POL Applications
- Load Switch
- LED Applicatio

Reference News

PACKAGE OUTLINE	Pin Configuration	Marking
 TO-252		MSKSEMI AOD403

Absolute Maximum Ratings Tc=25℃ unless otherwise noted

Symbol	Parameter	Rating	Units
VDS	Drain-Source Voltage	-30	V
VGS	Gate-Source Voltage	±20	V
ID	Drain Current – Continuous (TC=25C)	-70	A
	Drain Current – Continuous (TC=100C)	-44	A
IDM	Drain Current – Pulsed[1]	-280	A
PD	Power Dissipation (TC=25C)	73.5	W
	Power Dissipation – Derate above 25C	0.58	W/ C
TSTG	Storage Temperature Range	-55 to 150	C
TJ	Operating Junction Temperature Range	-55 to 150	C

Thermal Characteristics

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction to ambient	---	62	C/ W
$R_{\theta JC}$	Thermal Resistance Junction to Case	---	1.7	C/ W

Electrical Characteristics (TJ=25℃ , unless otherwise noted)

Off Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V , I_D=-250uA	-30	---	---	V
$\triangle BV_{DSS}/\triangle T_J$	BV_{DSS} Temperature Coefficient	Reference to 25C , I_D=-1mA	---	-0.03	---	V/ C
I_{DSS}	Drain-Source Leakage Current	V_{DS}=-30V , V_{GS}=0V , T_J=25C	---	---	-1	uA
		V_{DS}=-24V , V_{GS}=0V , T_J=125C	---	---	-10	uA
I_{GSS}	Gate-Source Leakage Current	V_{GS}=±20V , V_{DS}=0V	---	---	±100	nA

On Characteristics

$R_{DS(ON)}$	Static Drain-Source On-Resistance	V_{GS}=-10V , I_D=-10A	---	5.5	8.0	mΩ
		V_{GS}=-4.5V , I_D=-8A	---	7.5	10	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{GS}=V_{DS} , I_D =-250uA	-1.0	-1.6	-2.5	V
△$V_{GS(th)}$	$V_{GS(th)}$ Temperature Coefficient		---	4	---	mV/℃
gfs	Forward Transconductance	V_{DS}=-10V , I_D=-10A	---	14	---	S

Dynamic and switching Characteristics

Q_g	Total Gate Charge[2,3]	V_{DS}=-15V , V_{GS}=-4.5V , I_D=-10A	---	35	---	nC
Q_{gs}	Gate-Source Charge[2,3]		---	10.8	---	
Q_{gd}	Gate-Drain Charge[2,3]		---	10.6	---	
$T_{d(on)}$	Turn-On Delay Time[2,3]	V_{DD}=-15V , V_{GS}=-10V , R_G=6Ω I_D=-1A	---	24.5	---	ns
T_r	Rise Time[2,3]		---	10.5	---	
$T_{d(off)}$	Turn-Off Delay Time[2,3]		---	156.8	---	
T_f	Fall Time[2,3]		---	50	---	
C_{iss}	Input Capacitance	V_{DS}=-15V , V_{GS}=0V , F=1MHz	---	3300	---	pF
C_{oss}	Output Capacitance		---	410	---	
C_{rss}	Reverse Transfer Capacitance		---	280	---	
R_g	Gate resistance	V_{GS}=0V, V_{DS}=0V, F=1MHz	---	8.5	---	Ω

Drain- Source Diode Characteristics and Maximum Ratings

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	V_G=V_D=0V , Force Current	---	---	-70	A
I_{SM}	Pulsed Source Current		---	---	-140	A
V_{SD}	Diode Forward Voltage	V_{GS}=0V , I_S=-1A , T_J=25℃	---	---	-1.2	V

Note :

1 . Repetitive Rating : Pulsed width limited by maximum junction temperature.

2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2% .

3. Essentially independent of operating temperature.

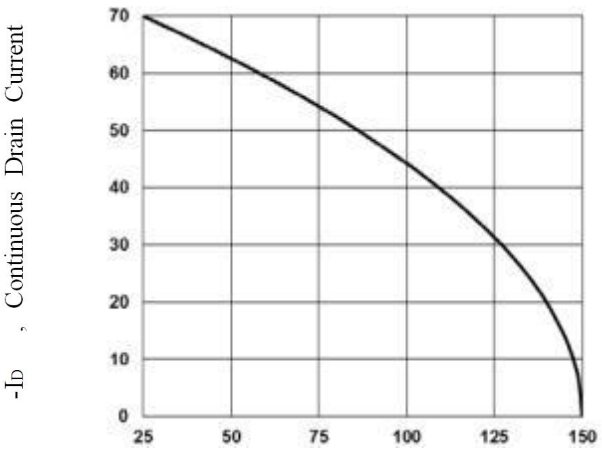


Fig. 1 Continuous Drain Current vs. TC

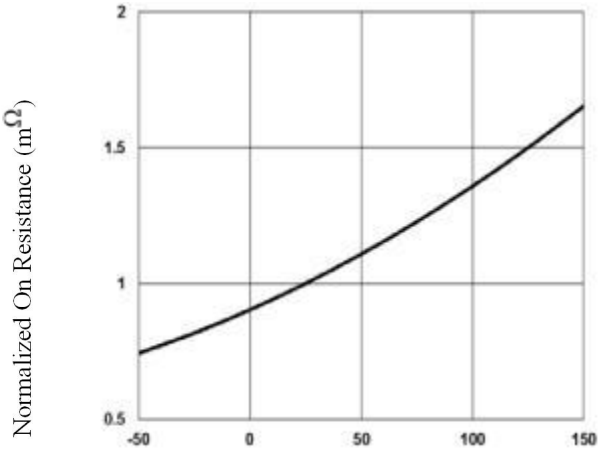


Fig. 2 Normalized RDSON vs. TJ

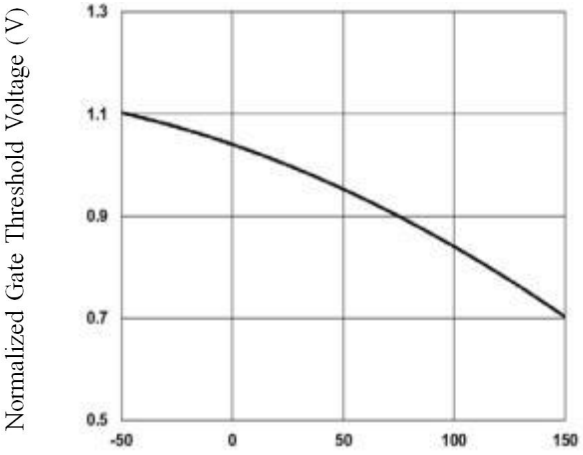


Fig. 3 Normalized V_{th} vs. T_J

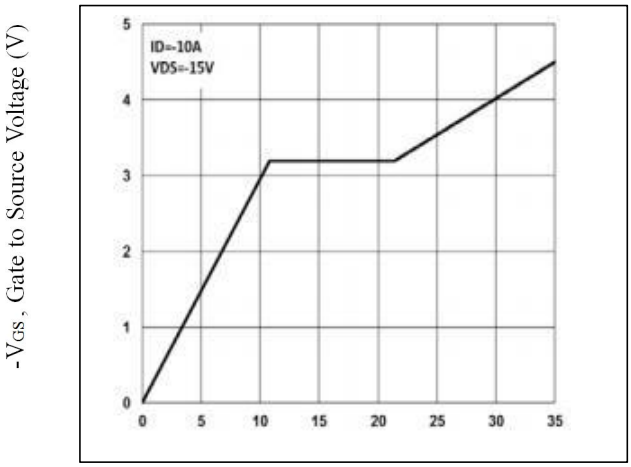


Fig. 4 Gate Charge Waveform

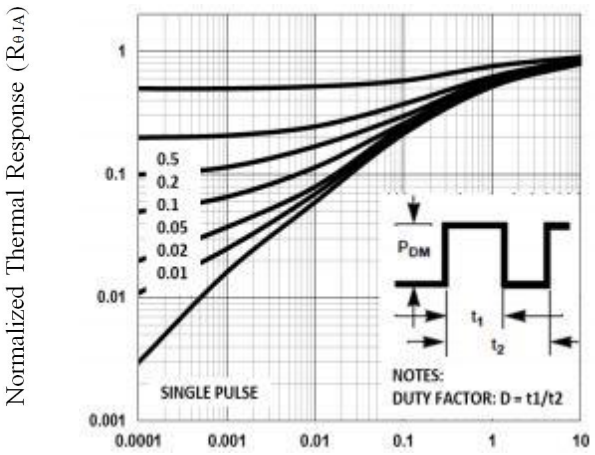


Fig. 5 Normalized Transient Response

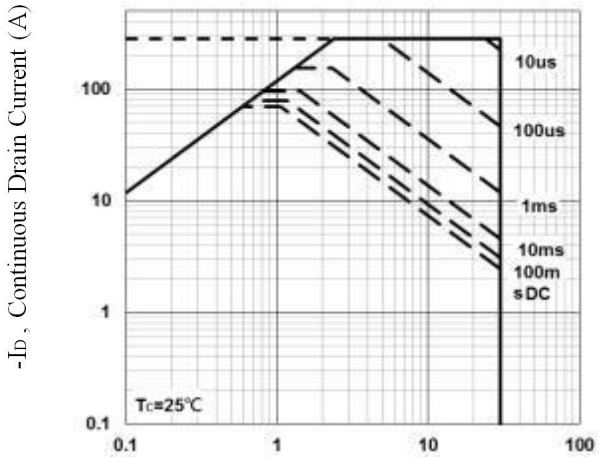
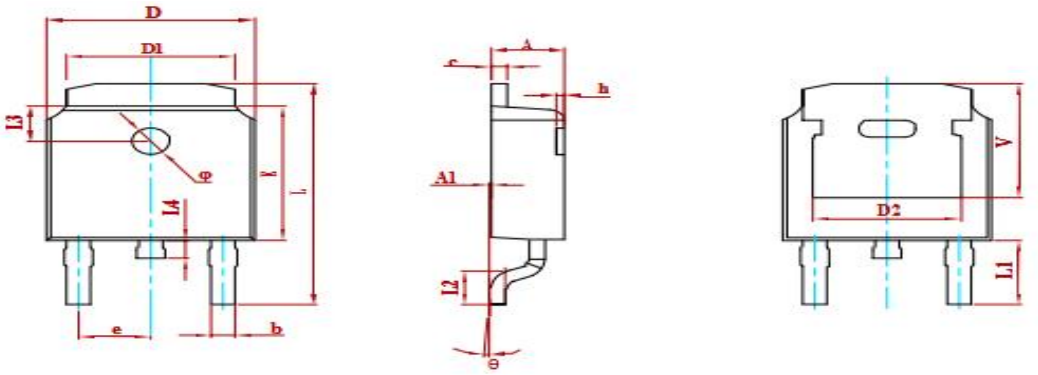


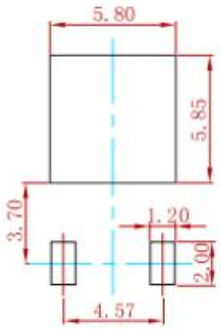
Fig. 6 Maximum Safe Operation Area

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.

REEL SPECIFICATION

P/N	PKG	QTY
AOD403	TO-252	2500

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