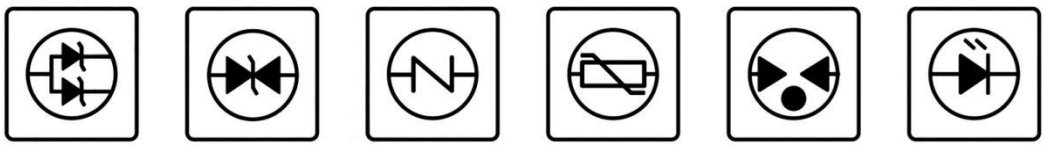
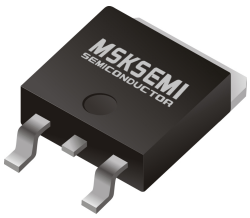
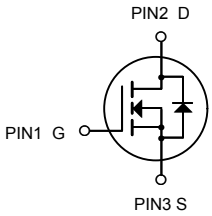
MSKSEMI
SEMICONDUCTOR



Product data sheet





N-Channel MOSFET

TO-252

General Description

The AOD2606-MS use advanced VD MOST technology to provide low RDS(ON), low gate charge, fast switching

This device is specially designed to get better ruggedness and suitable to use in

Low RDS(on) & FOM

Extremely low switching loss

Excellent stability and uniformity or Invertors

Applications

Consumer electronic power supply Motor control

Synchronous-rectification Isolated DC

Synchronous-rectification applications

General Features

V_{DS} = 60V I_D =80 A

$R_{DS(ON)}$ < 8mΩ @ V_{GS}=10V

$R_{DS(ON)}$ < 12mΩ @ V_{GS}=4.5V

Absolute Maximum Ratings@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
I_D@T_C=25℃	Drain Current, V_{GS} @ 10V	80	A
I_D@T_C=100℃	Drain Current, V_{GS} @ 10V	43	A
I_{DM}	Pulsed Drain Current[1]	272	A
P_D@T_C=25℃	Total Power Dissipation	104	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃
Rthj-c	Maixmum Thermal Resistance, Junction-case	1.2	℃/W
Rthj-a	Maximum Thermal Resistance, Junction-ambient (PCB mount)[3]	62.5	℃/W

Electrical Characteristics@T_j=25°C(unless otherwise specified)

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=250uA	60	-	-	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance[2]	V_{GS}=10V, I_D=45A	-	6	10	mΩ
		V_{GS}=4.5V, I_D=30A	-	8.3	15	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=250uA	1	1.4	3	V
g_{fs}	Forward Transconductance	V_{DS}=10V, I_D=30A	-	71	-	S
I_{DSS}	Drain-Source Leakage Current	V_{DS}=60V, V_{GS}=0V	-	-	10	uA
	Drain-Source Leakage Current (T_j=125°C)	V_{DS}=48V ,V_{GS}=0V	-	-	250	uA
I_{GSS}	Gate-Source Leakage	V_{GS}=±20V, V_{DS}=0V	-	-	±100	nA
Q_g	Total Gate Charge	I_D=30A V_{DS}=48V V_{GS}=4.5V	-	33	45	nC
Q_{gs}	Gate-Source Charge		-	5	-	nC
Q_{gd}	Gate-Drain ("Miller") Charge		-	21	-	nC
$t_{d(on)}$	Turn-on Delay Time	V_{DS}=30V I_D=30A R_G=3.3Ω V_{GS}=10V	-	10	-	ns
t_r	Rise Time		-	43	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	47	-	ns
t_f	Fall Time		-	80	-	ns
C_{iss}	Input Capacitance	V_{GS}=0V V_{DS}=25V f=1.0MHz	-	2680	3300	pF
C_{oss}	Output Capacitance		-	260	-	pF
C_{rss}	Reverse Transfer Capacitance		-	180	-	pF
V_{SD}	Forward On Voltage[2]	I_S=45A, V_{GS}=0V	-	-	1.3	V
t_{rr}	Reverse Recovery Time	I_S=10A, V_{GS}=0V, dI/dt=100A/μs	-	30	-	ns
Q_{rr}	Reverse Recovery Charge		-	18	-	nC

Typical Performance Characteristics

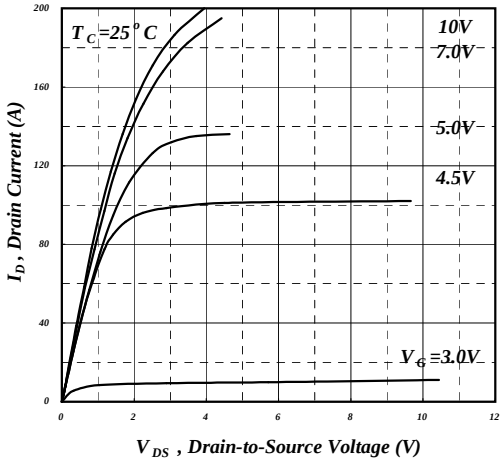


Fig 1. Typical Output Characteristics

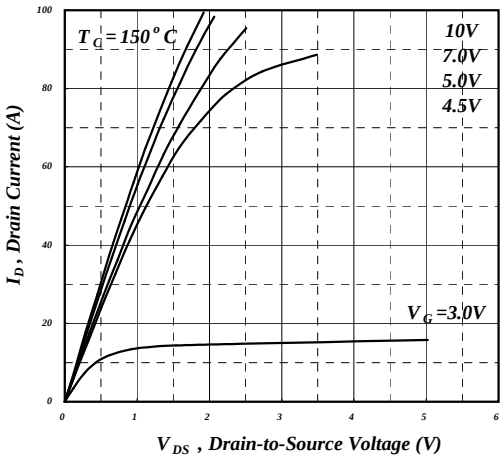


Fig 2. Typical Output Characteristics

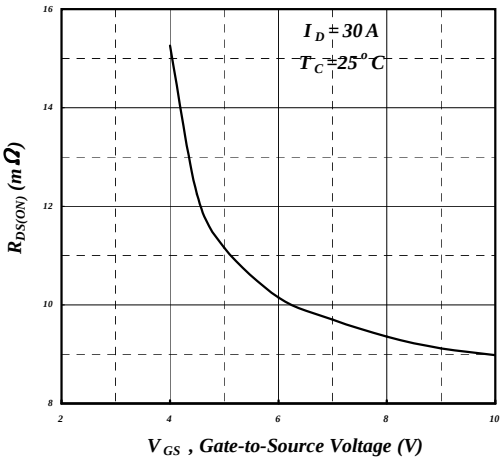


Fig 3. On-Resistance v.s. Gate Voltage

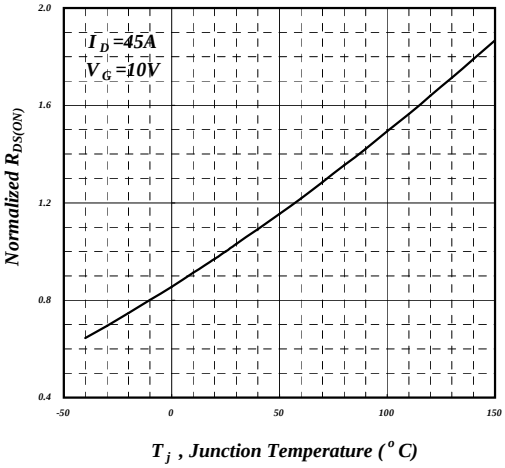


Fig 4. Normalized On-Resistance v.s. Junction Temperature

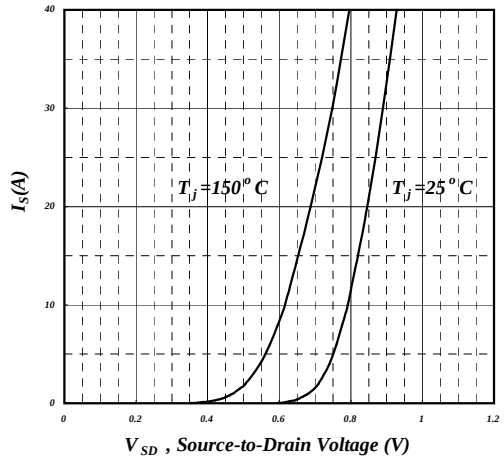


Fig 5. Forward Characteristic of Reverse Diode

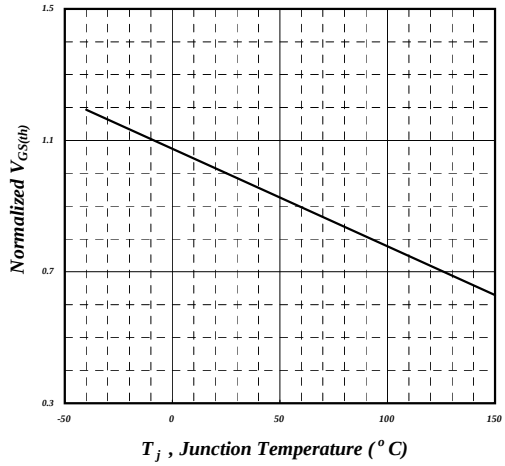


Fig 6. Gate Threshold Voltage v.s. Junction Temperature

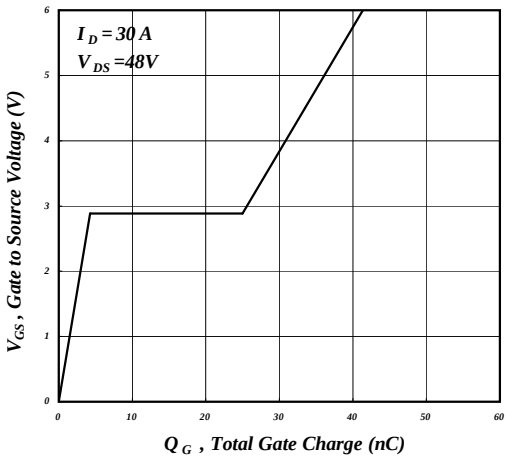


Fig 7. Gate Charge Characteristics

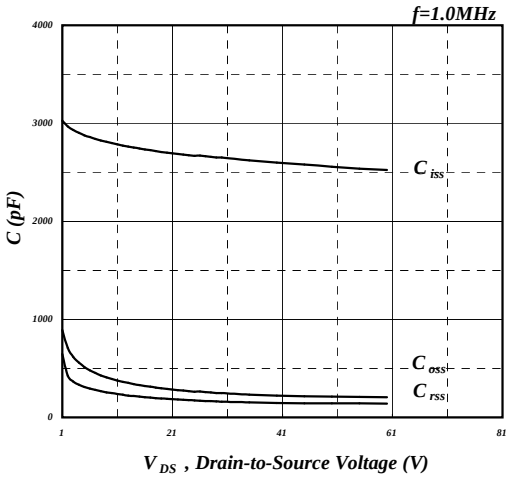


Fig 8. Typical Capacitance Characteristics

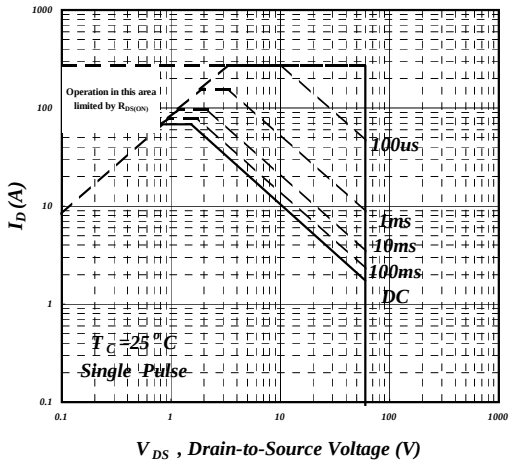


Fig 9. Maximum Safe Operating Area

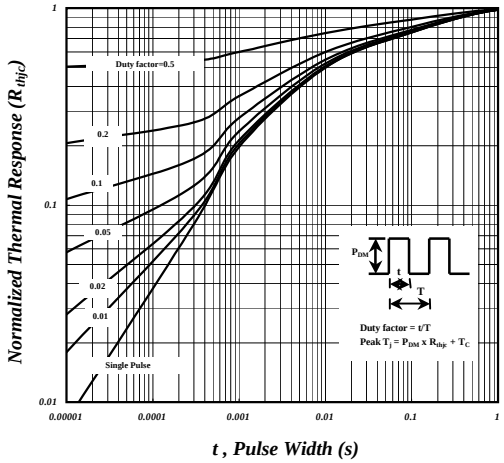


Fig 10. Effective Transient Thermal Impedance

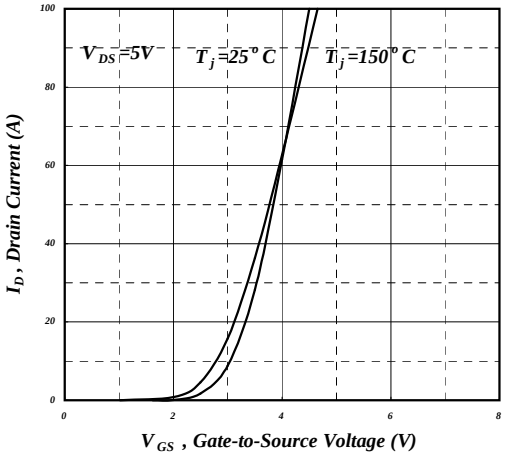


Fig 11. Transfer Characteristics

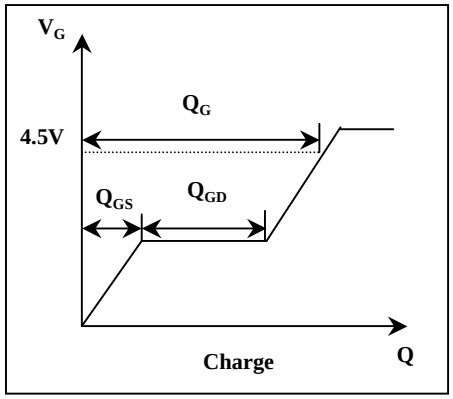
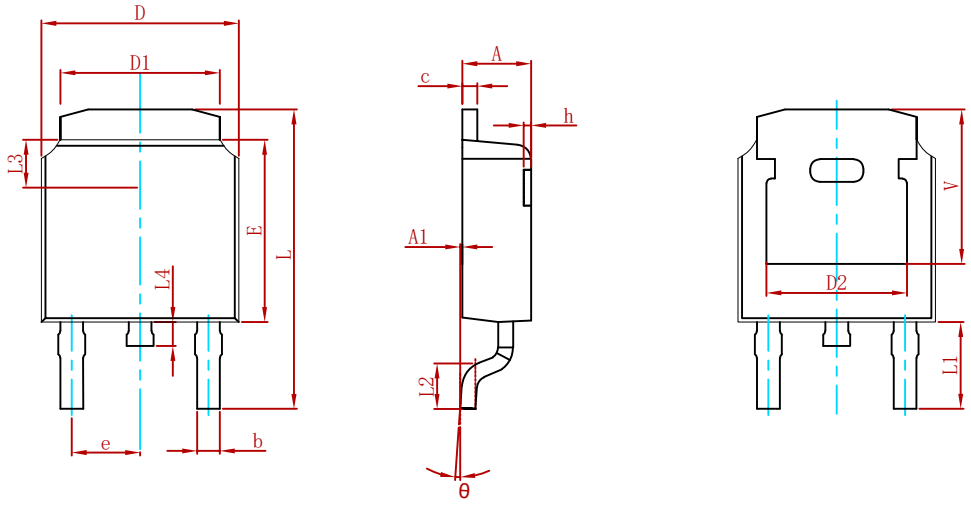


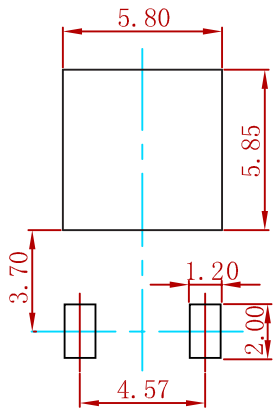
Fig 12. Gate Charge Waveform

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
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
AOD2606-MS	TO-252	2500

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