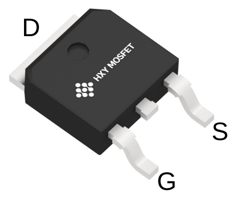
General Description

The AOD2910E use advanced SGT MOSFET technology to provide low RDS(ON), low gate charge,fast switching and excellent avalanche characteristics.This device is specially designed to get better ruggedness.

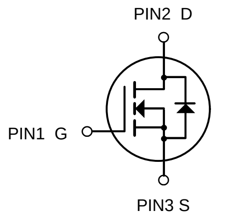


TO-252-2L

General Features

V_{DS} = 100V I_D = 40A

$R_{DS(ON)}$ < 23mΩ @ V_{GS}=10 V



N-SGT MOSFET

Applications

Consumer electronic power supply
Motor control
Synchronous-rectification
Isolated DC
Synchronous-rectification applications

Ordering Information

Product ID	Pack	Brand	Qty(PCS)
AOD2910E	TO-252-2L	HXY MOSFET	2500

Absolute Maximum Ratings at T_j=25℃ unless otherwise noted

Symbol	Parameter	Value	Unit
VDS	Drain source voltage	100	V
VGS	Gate source voltage	±20	V
ID	Continuous drain current , T_C=25 °C	40	A
ID, pulse	Pulsed drain current , T_C=25°C	100	A
P_D	Power dissipation , T_C=25°C	27	W
EAS	Single pulsed avalanche energy	16	mJ
Tstg， Tj	Operation and storage temperature	-55 to 150	°C
RθJC	Thermal resistance, junction-case	4.65	°C/W
RθJA	Thermal resistance, junction-ambient	62	°C/W

Electrical Characteristics at T_j=25 ℃ unless otherwise specified

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	100	-	-	V
I_{DSS}	Drain-Source Leakage Current	V_{DS} = 80V, V_{GS} = 0V	-	-	1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS} = 0V, V_{GS} = ±20V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	1.2	1.8	2.6	V
$R_{DS(on)}$	Static Drain-Source On-Resistance	V_{GS} = 10V, I_D = 15A	-	20	23	mΩ
		V_{GS} = 4.5V, I_D = 10A	-	-	33	mΩ
g_{fs}	Forward Threshold Voltage	V_{DS}= 10V, I_D= 20A	-	22	-	S
R_g	Gate Resistance	V_{DS} = V_{GS}=0V, f = 1.0MHz	-	1.62	-	Ω
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = 50V, V_{GS} = 0V, f = 1.0MHz	-	822	-	pF
C_{oss}	Output Capacitance		-	310	-	pF
C_{rss}	Reverse Transfer Capacitance		-	23.5	-	pF
Switching Characteristics						
Q_g	Total Gate Charge	V_{DS}= 50V, I_D = 20A, V_{GS} = 10V	-	22.7	-	nC
Q_{gs}	Gate-Source Charge		-	6.2	-	
Q_{gd}	Gate-Drain("Miller") Charge		-	5.3	-	
$t_{d(on)}$	Turn-On Delay Time	V_{DS} = 50V, I_D = 20A, R_G = 3Ω, V_{GS}=10V	-	15	-	ns
t_r	Turn-On Rise Time		-	3.2	-	
$t_{d(off)}$	Turn-Off Delay Time		-	30	-	
t_f	Turn-Off Fall Time		-	7.6	-	
Diode Characteristics						
I_S	Continuous Source Current		-	-	40	A
V_{SD}	Diode Forward Voltage	I_S=20A . V_{GS} = 0V	-	0.88	1.0	V
t_{rr}	Reverse Recovery Time	I_{SD}=20A, dI_{SD}/dt=100A/μs	-	45	-	ns
Q_{rr}	Reverse Recovery Charge		-	59	-	nC

Notes:

1. The value of $R_{\theta JC}$ is measured in a still air environment with TA =25°C and the maximum allowed junction temperature of 150°C. The value in any given application depends on the user's specific board design.
2. The power dissipation P_D is based on $T_{J(MAX)}$=150°C, using junction-to-case thermal resistance, and is more useful in setting the upper dissipation limit for cases where additional heatsinking is used.
3. Single pulse width limited by junction temperature $T_{J(MAX)}$=150°C.
4. The $R_{\theta JA}$ is the sum of the thermal impedance from junction to case $R_{\theta JC}$ and case to ambient.
5. The maximum current rating is package limited.
6. The EAS data shows Max. rating. The test condition is V_{DS}=50V,V_{GS}=10V,L=0.5mH

Electrical Characteristics Diagrams

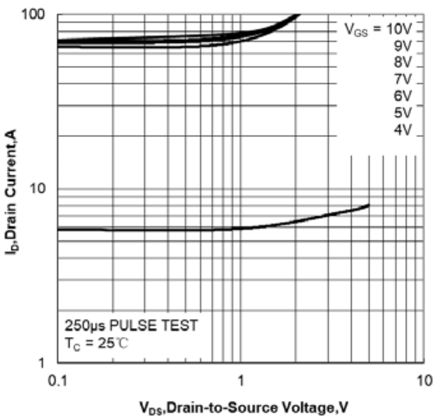


Figure 1. Output Characteristics

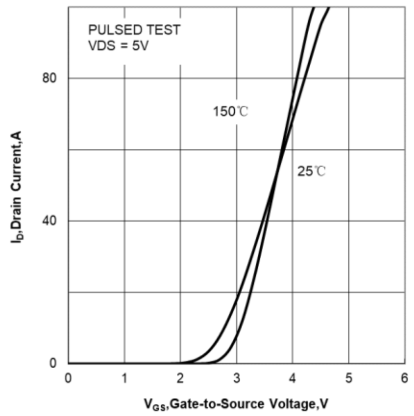


Figure 2. Transfer Characteristics

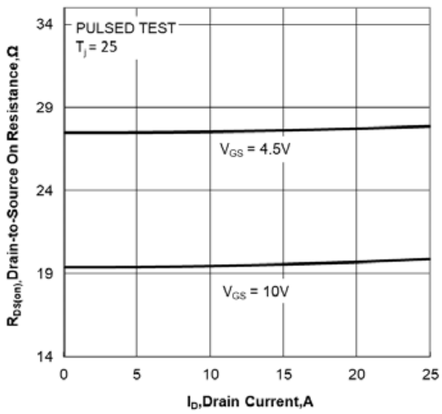


Figure 3. Drain-to-Source On Resistance vs Drain Current

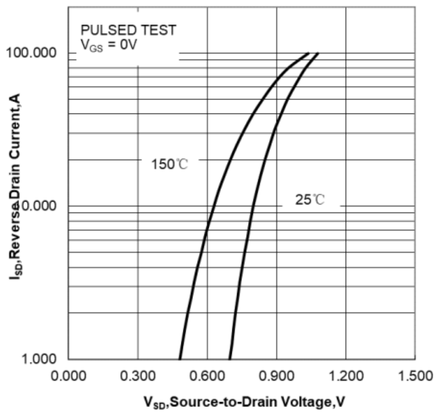


Figure 4. Body Diode Forward Voltage vs Source Current and Temperature

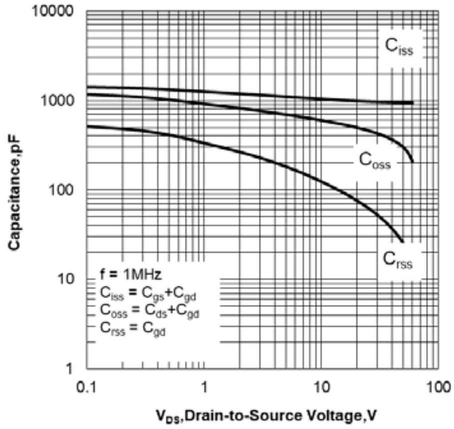


Figure 5. Capacitance Characteristics

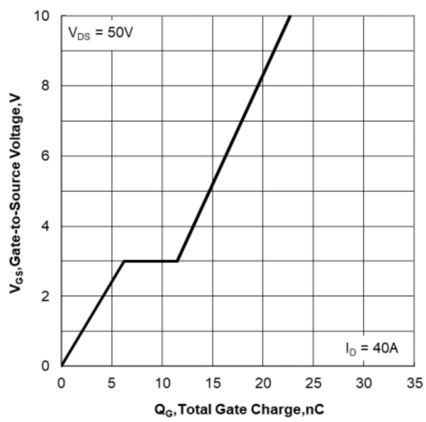


Figure 6. Gate Charge Characteristics

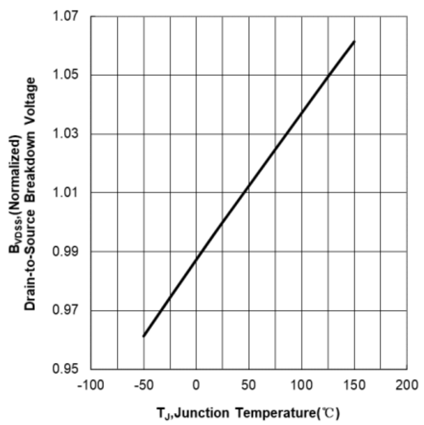


Figure 7. Normalized Breakdown Voltage vs Junction Temperature

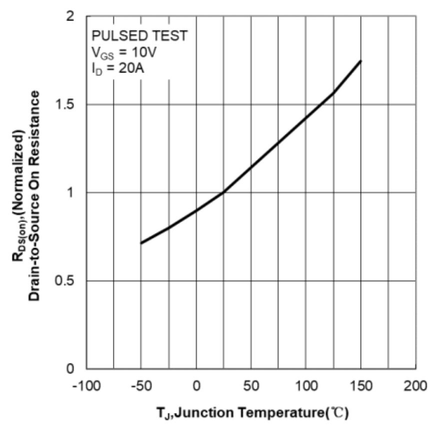


Figure 8. Normalized On Resistance vs Junction Temperature

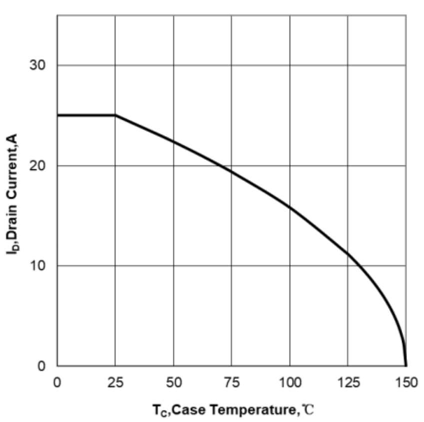


Figure 9. Maximum Continuous Drain Current vs Case Temperature

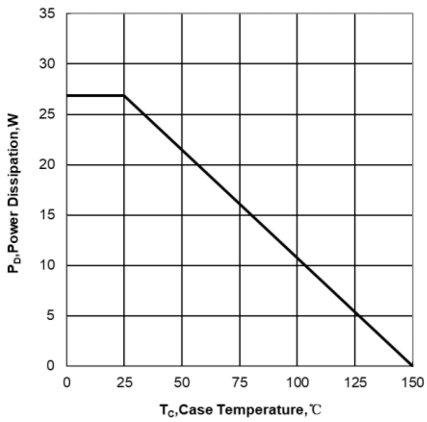


Figure 10. Maximum Power Dissipation vs Case Temperature

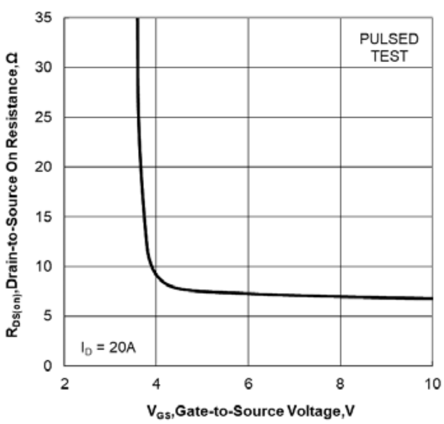


Figure11. Drain-to-Source On Resistance vs Gate

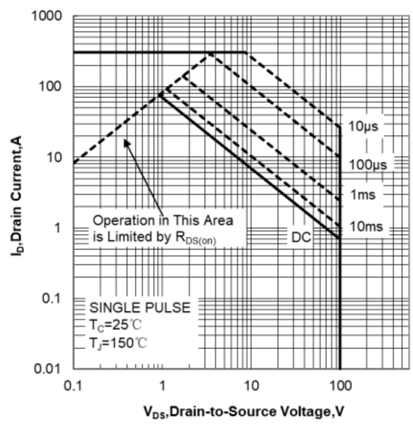


Figure 12. Maximum Safe Operating Area

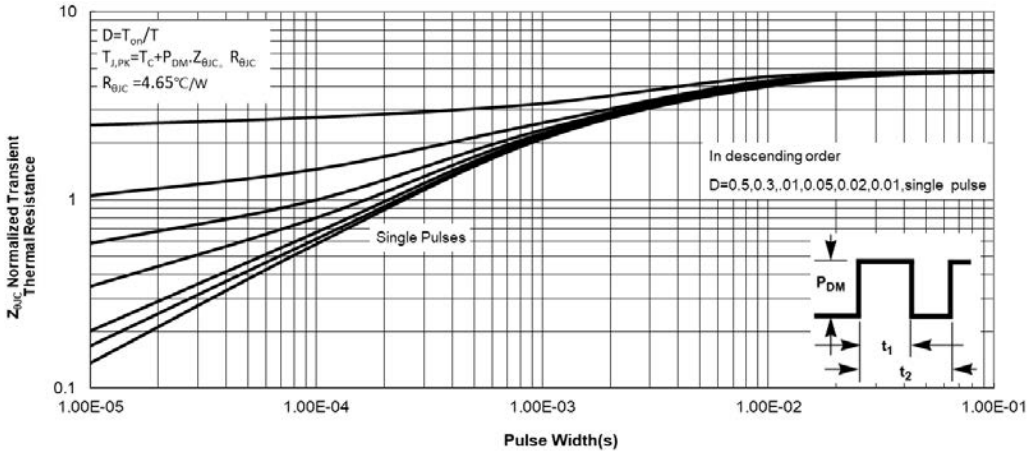
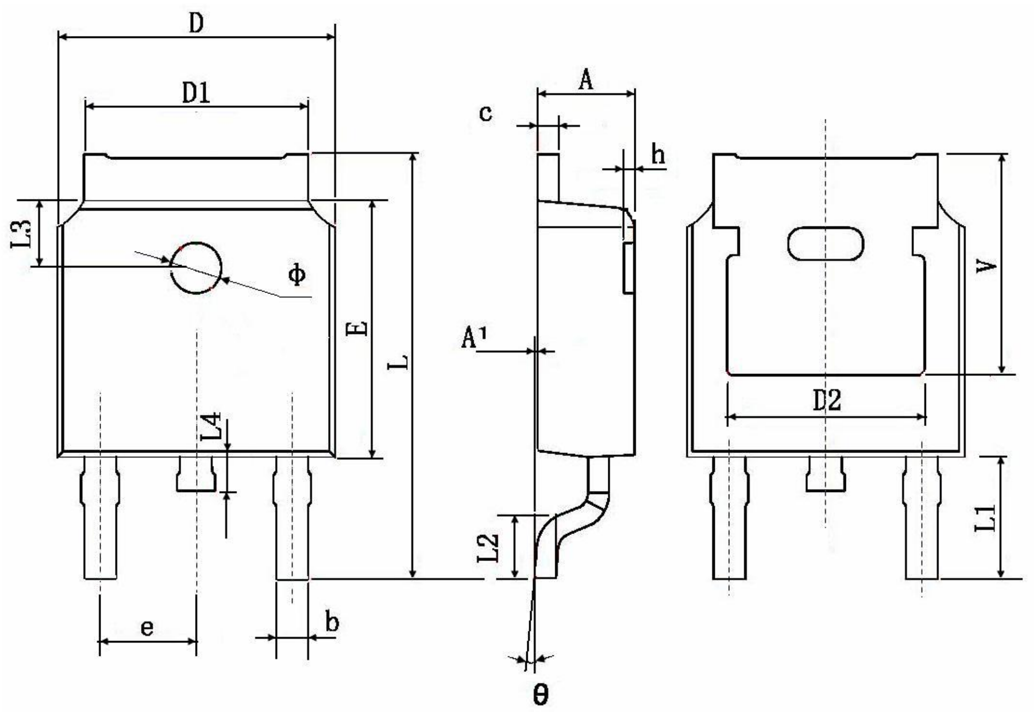


Figure 13. Maximum Effective Transient Thermal Impedance, Junction-to-Case

TO-252-2L Package Information



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	0.660	0.860	0.026	0.034
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	0.483 TYP.		0.190 TYP.	
E	6.000	6.200	0.236	0.244
e	2.186	2.386	0.086	0.094
L	9.800	10.400	0.386	0.409
L1	2.900 TYP.		0.114 TYP.	
L2	1.400	1.700	0.055	0.067
L3	1.600 TYP.		0.063 TYP.	
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	5.350 TYP.		0.211 TYP.	

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