

● General Description

The AGM01P15D combines advanced trench MOSFET technology with a low resistance package to provide extremely low $R_{DS(ON)}$

This device is ideal for load switch and battery protection applications.

● Features

- Advance high cell density Trench technology
- Low $R_{DS(ON)}$ to minimize conductive loss
- Low Gate Charge for fast switching
- Low Thermal resistance

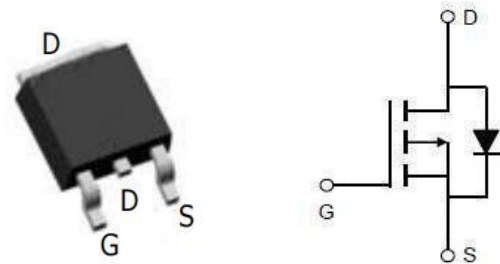
● Application

- MB/VGA Vcore
- SMPS 2nd Synchronous Rectifier
- POL application
- BLDC Motor driver

Product Summary

BVDSS	RDS(ON)	ID
-100V	315mΩ	-13A

TO-252 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM01P15D	AGM01P15D	TO-252	----	----	2500

Table 1. Absolute Maximum Ratings (TC=25°C)

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	-100	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25°C) (Note 1)	-13	A
	Drain Current-Continuous(Tc=100°C)	-9.2	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed (Note 2)	-52	A
PD	Maximum Power Dissipation(Tc=25°C)	33	w
	Maximum Power Dissipation(Tc=100°C)	13	w
EAS	Avalanche energy (Note 3)	110	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	°C

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
RθJA	Thermal Resistance Junction-ambient (Steady State) ¹	---	--	°C/W
RθJC	Thermal Resistance Junction-Case ¹	---	3.75	°C/W

Table 3. Electrical Characteristics (TC=25°C unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=-250μA	-100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-100V, VGS=0V	--	--	-1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V, VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS, ID=-250μA	-1.0	-1.9	-3.0	V
gFS	Forward Transconductance	VDS=5V, ID=-3A	--	5	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-6A	--	315	340	mΩ
		VGS=-4.5V, ID=-3A	--	297	330	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=-50V, VGS=0V, F=1MHZ	--	1734	--	pF
Coss	Output Capacitance		--	86	--	pF
Crss	Reverse Transfer Capacitance		--	40	--	pF
Rg	Gate resistance	f=1.0MHz	--	--	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=-10V, VDS=-50V, ID=-10A, RGEN=9.1Ω	--	12	--	nS
tr	Turn-on Rise Time		--	52	--	nS
td(off)	Turn-Off Delay Time		--	28	--	nS
tf	Turn-Off Fall Time		--	38	--	nS
Qg	Total Gate Charge	VGS=-10V, VDS=-50V, ID=-10A	--	33	--	nC
Qgs	Gate-Source Charge		--	4.2	--	nC
Qgd	Gate-Drain Charge		--	7.1	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	-13	A
VSD	Forward on Voltage	VGS=0V, IS=-6A	--	--	-1.2	V
trr	Reverse Recovery Time	Isd=-10A , dI/dt=100A/μs , TJ=25°C	--	35	--	ns
Qrr	Reverse Recovery Charge		--	46	--	nc

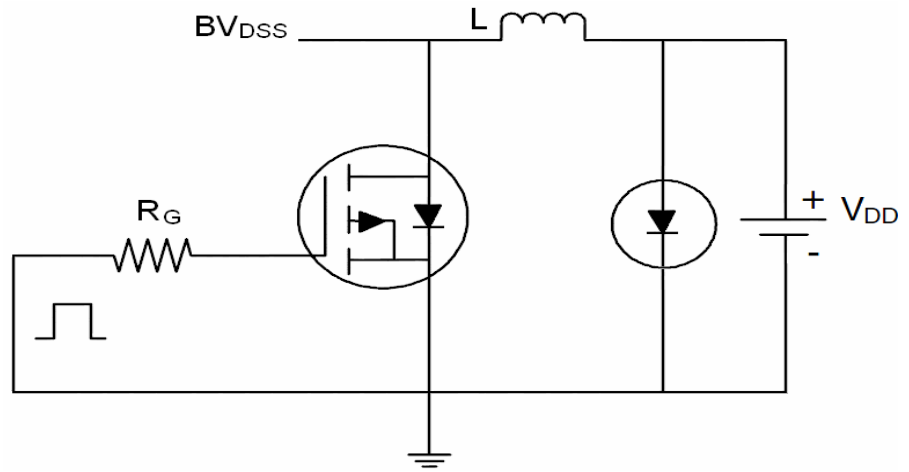
Notes 1.The maximum current rating is package limited.

Notes 2.Repetitive Rating: Pulse width limited by maximum junction temperature

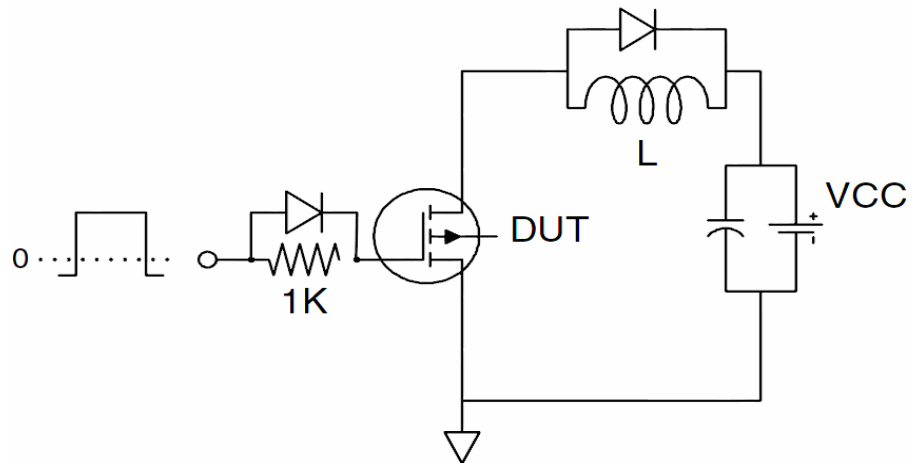
Notes 3.EAS condition: TJ=25°C

Test Circuit

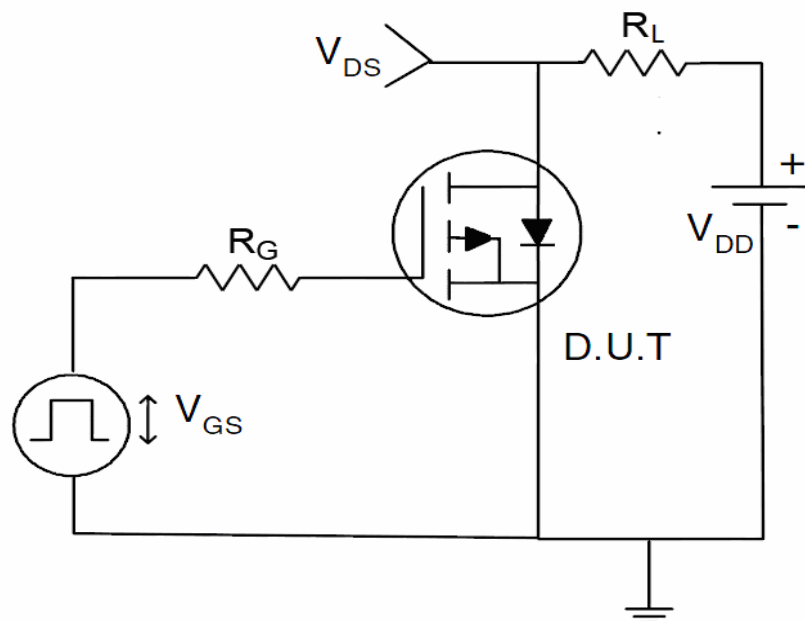
1) E_{AS} Test Circuit



2) Gate Charge Test Circuit



3) Switch Time Test Circuit



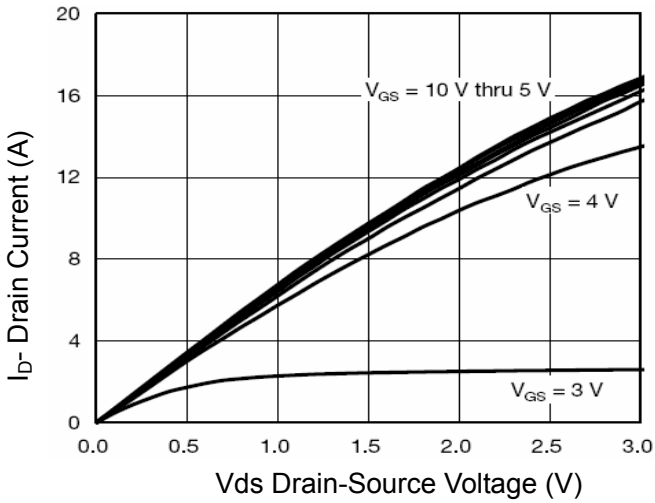


Figure 1 Output Characteristics

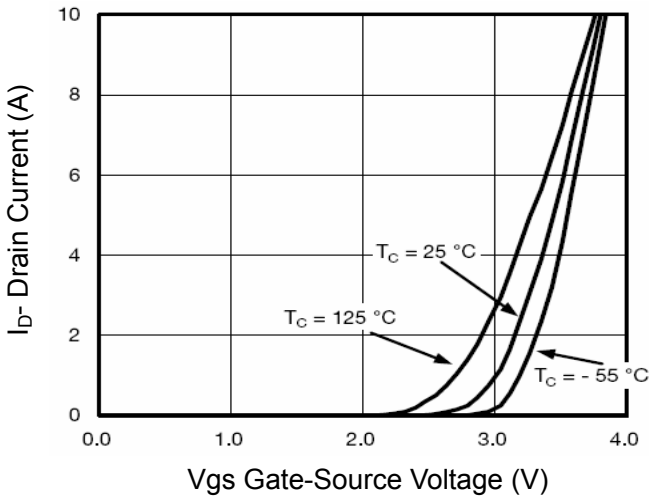


Figure 2 Transfer Characteristics

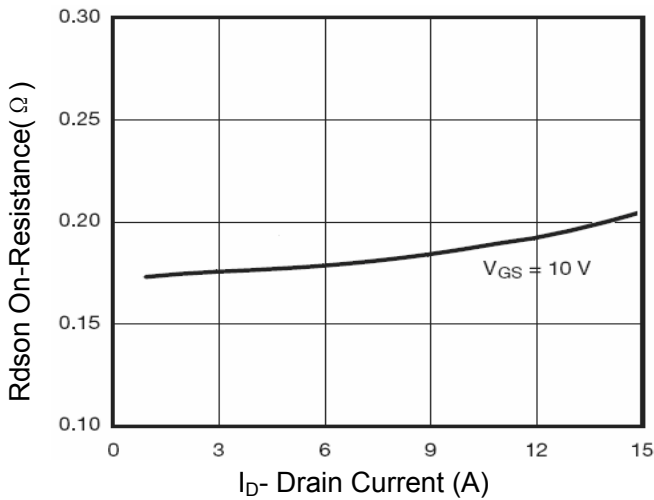


Figure 3 Rdson- Drain Current

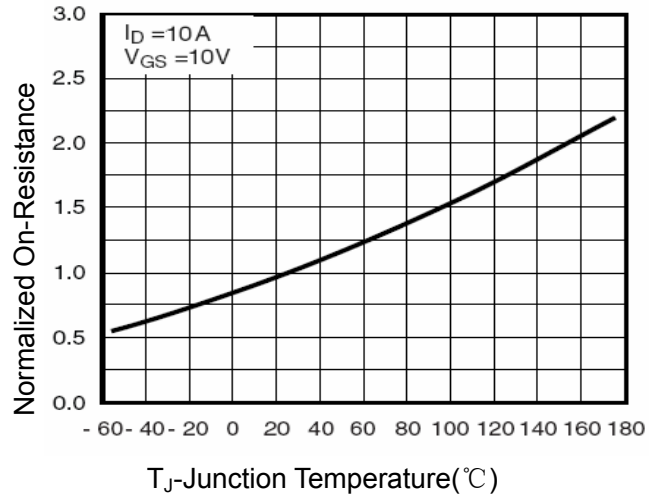


Figure 4 Rdson-Junction Temperature

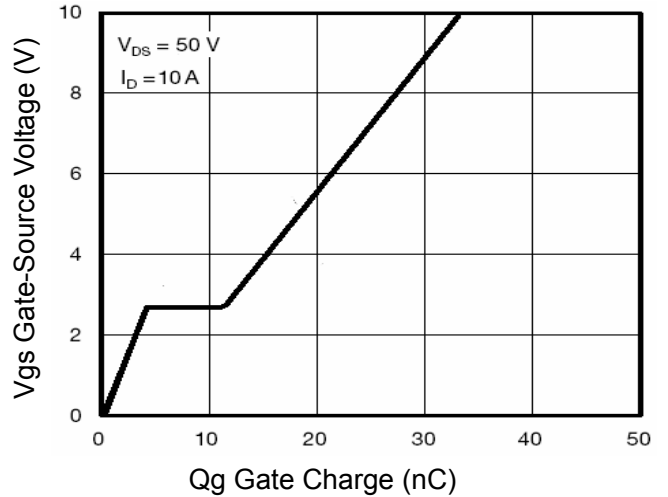


Figure 5 Gate Charge

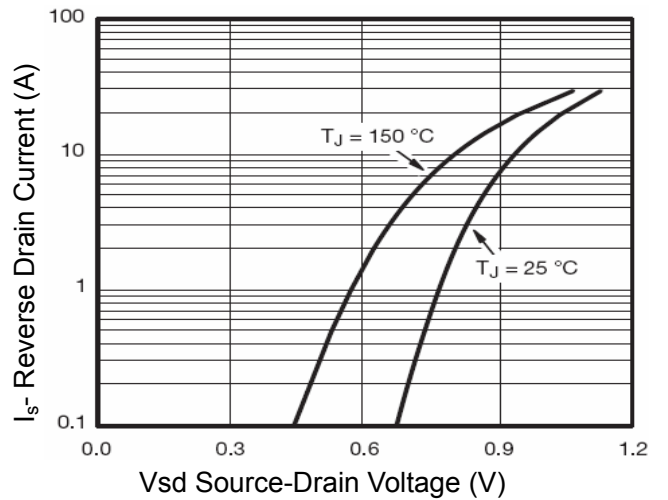


Figure 6 Source- Drain Diode Forward

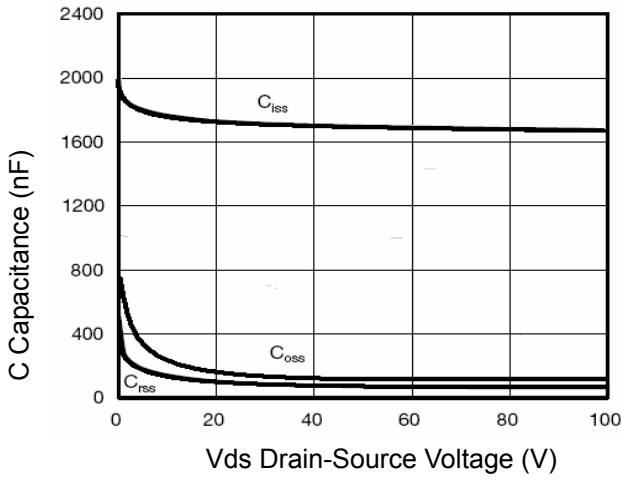


Figure 7 Capacitance vs Vds

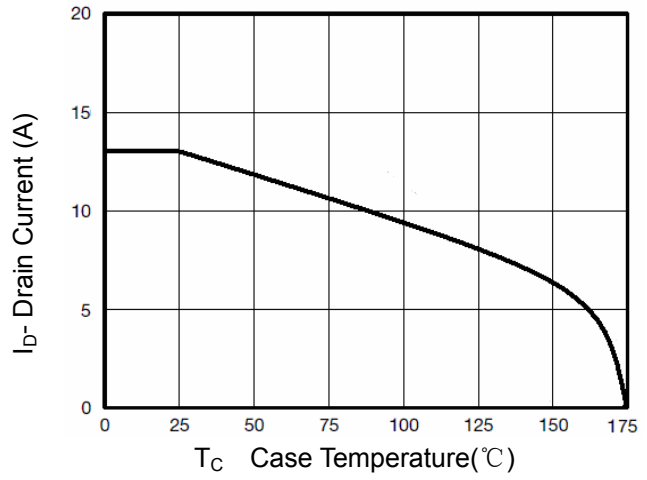


Figure 9 Drain Current vs Case Temperature

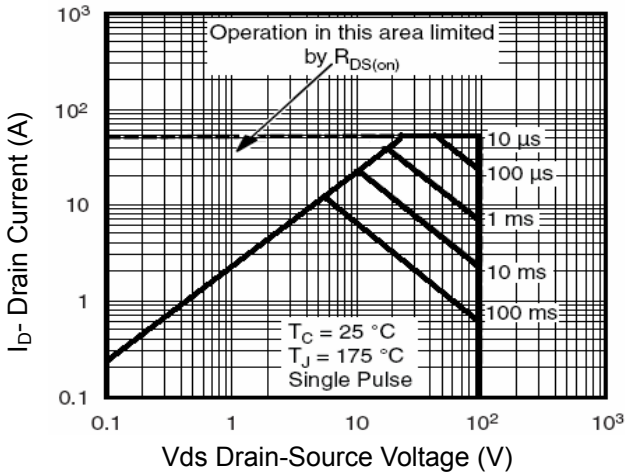


Figure 8 Safe Operation Area

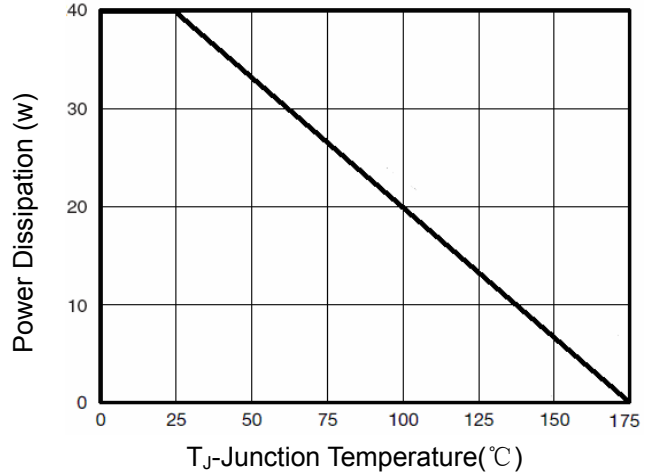


Figure 10 Power De-rating

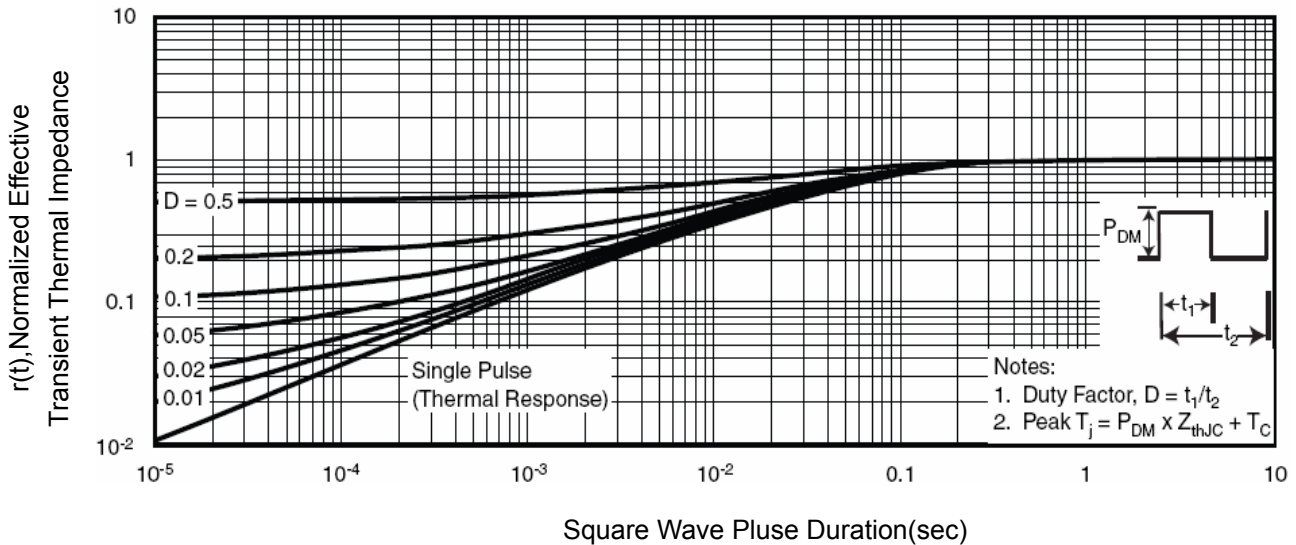
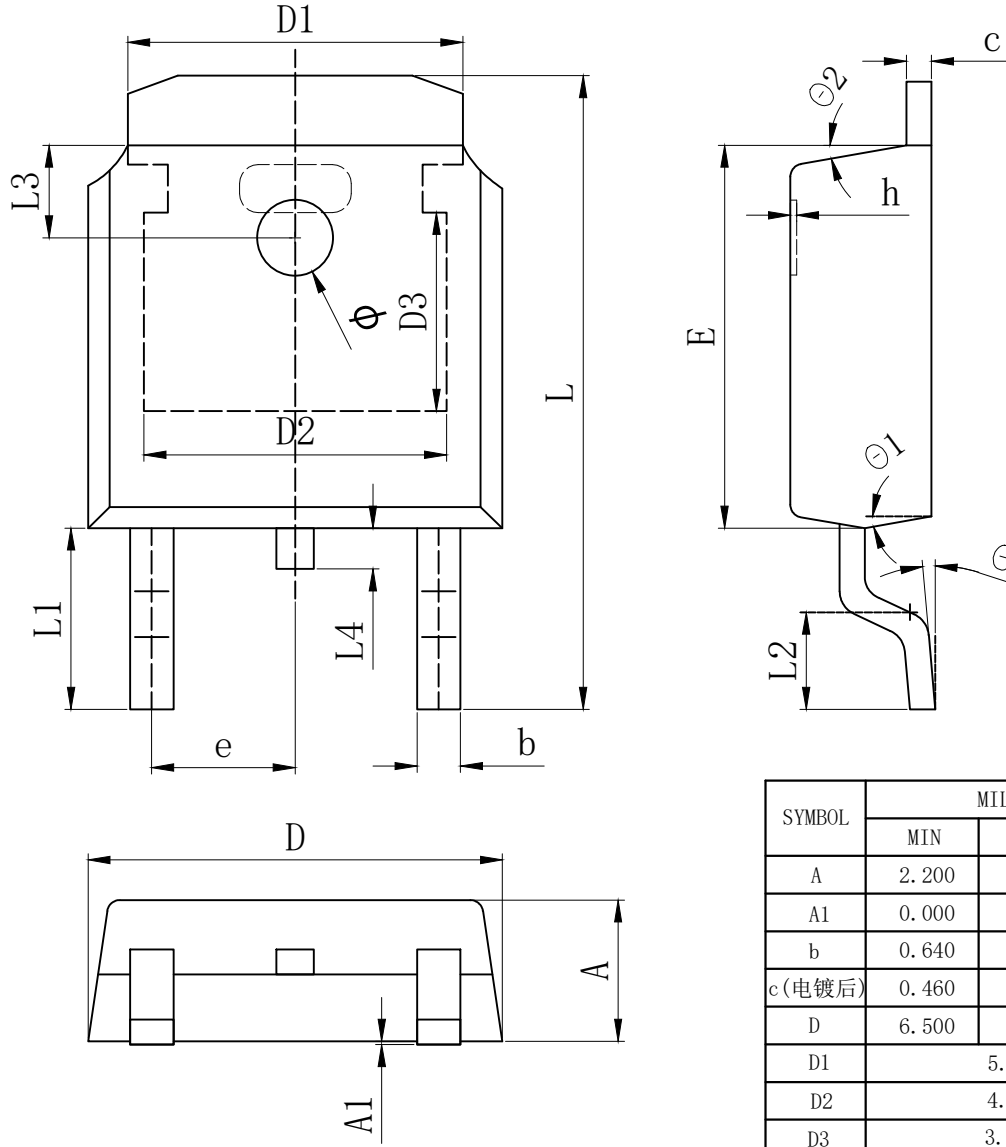


Figure 11 Normalized Maximum Transient Thermal Impedance

TO-252 Package Outline Data



SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	2.200	2.300	2.400
A1	0.000		0.127
b	0.640	0.690	0.740
c(电镀后)	0.460	0.520	0.580
D	6.500	6.600	6.700
D1	5.334 REF		
D2	4.826 REF		
D3	3.166 REF		
E	6.000	6.100	6.200
e	2.286 TYP		
h	0.000	0.100	0.200
L	9.900	10.100	10.300
L1	2.888 REF		
L2	1.400	1.550	1.700
L3	1.600 REF		
L4	0.600	0.800	1.000
phi	1.100	1.200	1.300
theta	0°		8°
theta 1	9° TYP		
theta 2	9° TYP		


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