General Description

The AGM016T08LL 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
- 100% Avalanche tested
- 100% DVDS tested

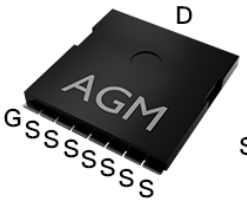
Application

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

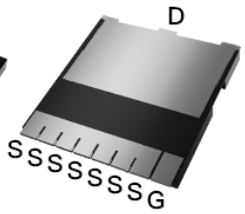
Product Summary

BVDSS	RDSON	ID
85V	1.38mΩ	280A

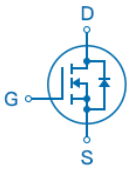
TOLL Pin Configuration



Top View



Bottom View



Pin	Description
1	Gate(G)
2,3,4,5,6,7,8	Source(S)
9	Drain(D)

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM016T08LL	AGM016T08LL	TOLL	330mm	25mm	2000

Table 1. Absolute Maximum Ratings (TA=25℃)

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	85	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25℃) **(Note 1)**	280	A
	Drain Current-Continuous(Tc=100℃)	231	A
IDM (pluse)	Drain Current-Pulsed **(Note 2)**	1120	A
PD	Maximum Power Dissipation(Tc=25℃)	258	w
	Maximum Power Dissipation(Tc=100℃)	129	w
EAS	Avalanche energy **(Note 3)**	1521	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 175	℃

Table 2. Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
RθJA	Thermal Resistance Junction-ambient (Steady State)[1]	---	42	℃/W
RθJC	Thermal Resistance Junction-Case[1]	---	0.58	℃/W

Table 3. Electrical Characteristics (TJ=25℃unless otherwise noted)

Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BV_{DSS}	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	85	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=85V,VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS,ID=250μA	2.2	2.6	3.3	V
gFS	Forward Transconductance	VDS=5V,ID=10A	--	34	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=50A	--	1.38	1.8	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=40V,VGS=0V, F=1MHZ	--	5545	--	pF
Coss	Output Capacitance		--	2096	--	pF
Crss	Reverse Transfer Capacitance		--	161	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	1.2	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=42V, ID=50A,RGEN=4.5Ω	--	28	--	nS
tr	Turn-on Rise Time		--	74	--	nS
td(off)	Turn-Off Delay Time		--	86	--	nS
tf	Turn-Off Fall Time		--	33	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=42V, ID=50A	--	140	--	nC
Qgs	Gate-Source Charge		--	56	--	nC
Qgd	Gate-Drain Charge		--	26	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	280	A
VSD	Forward on Voltage	VGS=0V,IS=50A	--	--	1.2	V
trr	Reverse Recovery Time	IF=50A , dI/dt=100A/μs , TJ=25℃	--	115	--	ns
Qrr	Reverse Recovery Charge		--	320	--	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℃,VDD=40V,Vgs=10V,ID=78A,L=0.5mH,RG=25ohm

Typical Electrical and Thermal Characteristics

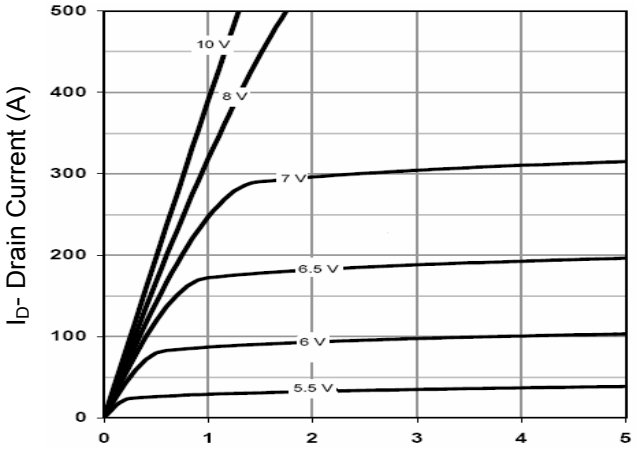


Figure 1 Output Characteristics

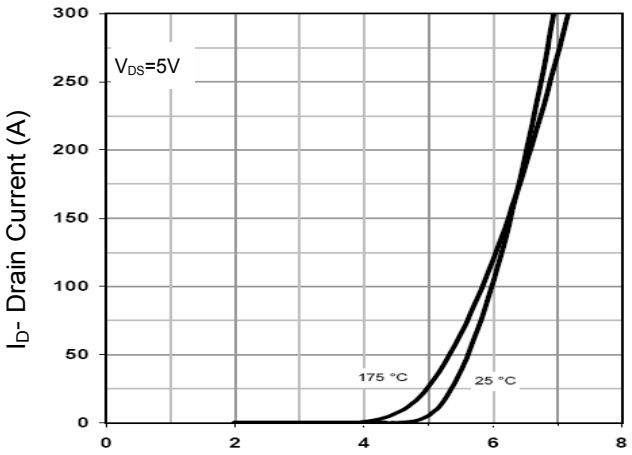


Figure 2 Transfer Characteristics

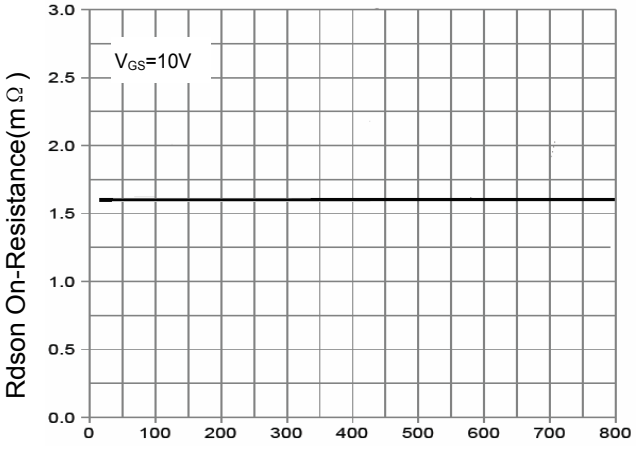


Figure 3 Rdson- Drain Current

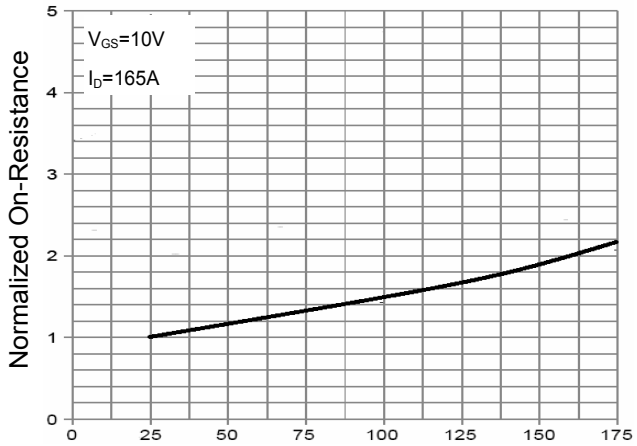


Figure 4 Rdson-Junction Temperature

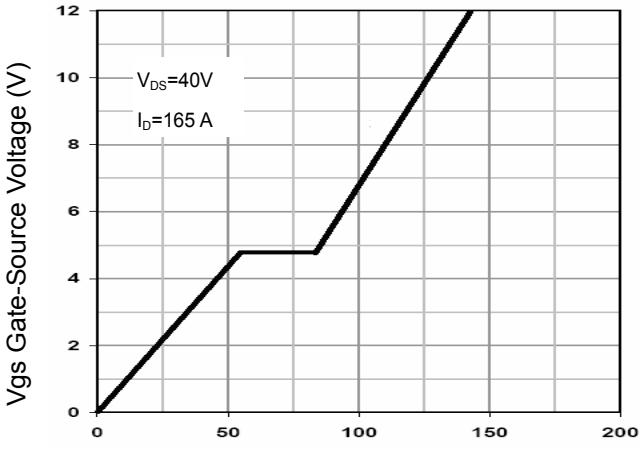


Figure 5 Gate Charge

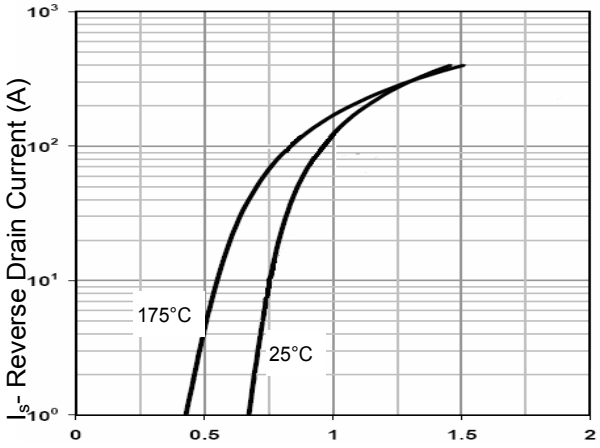


Figure 6 Source- Drain Diode Forward

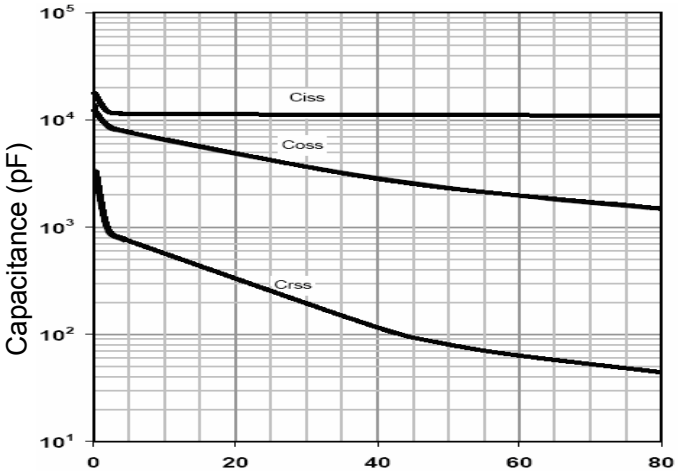


Figure 7 Capacitance vs Vds

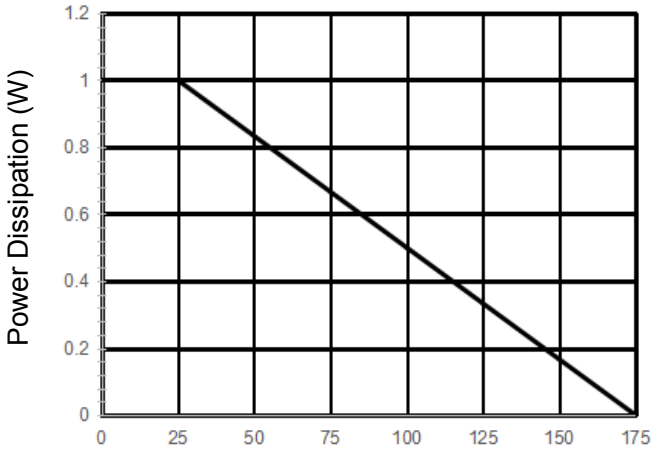


Figure 9 Power De-rating

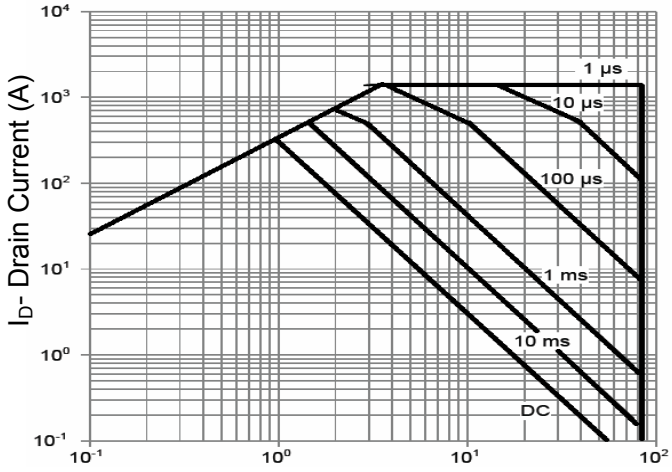


Figure 8 Safe Operation Area

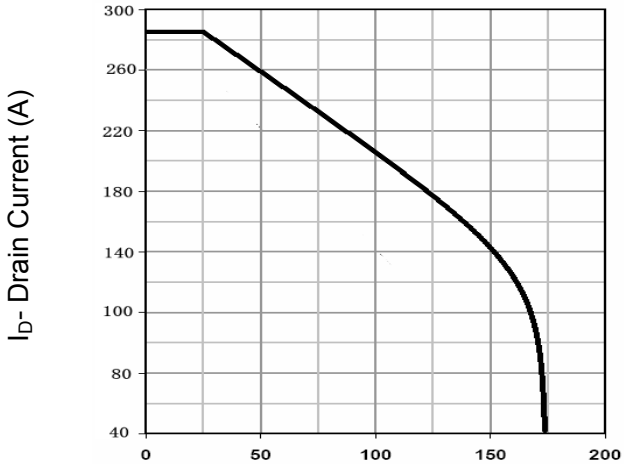


Figure 10 Current De-rating

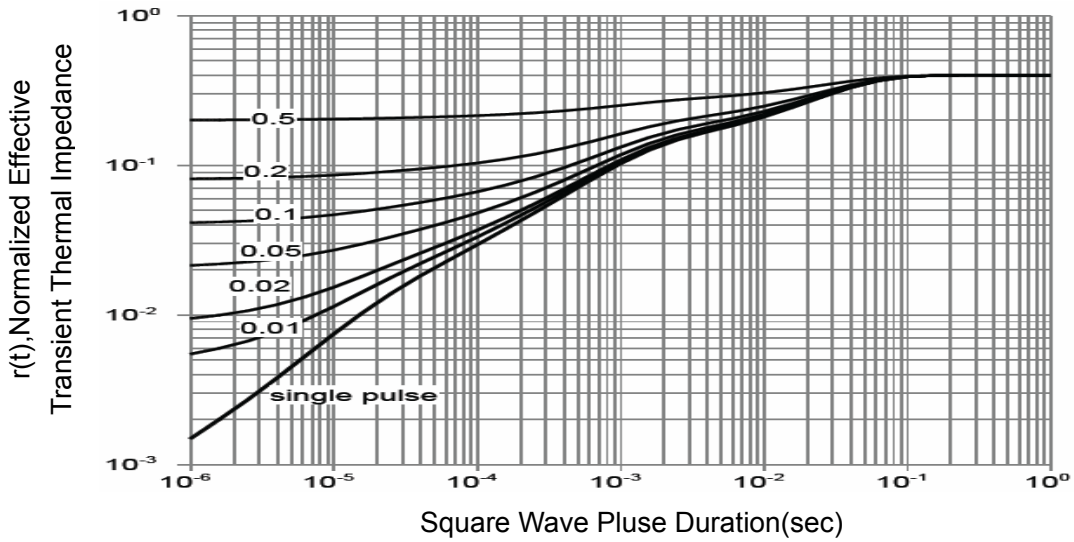
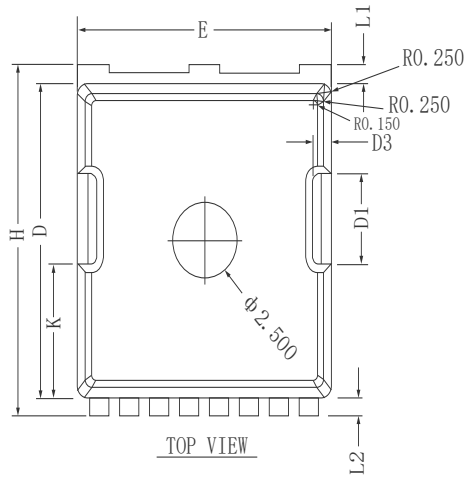
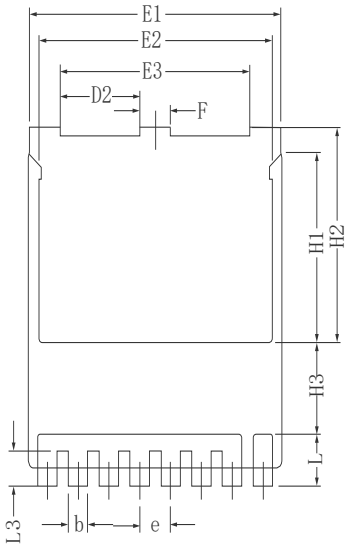
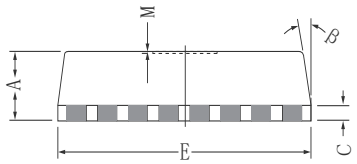


Figure 11 Normalized Maximum Transient Thermal Impedance

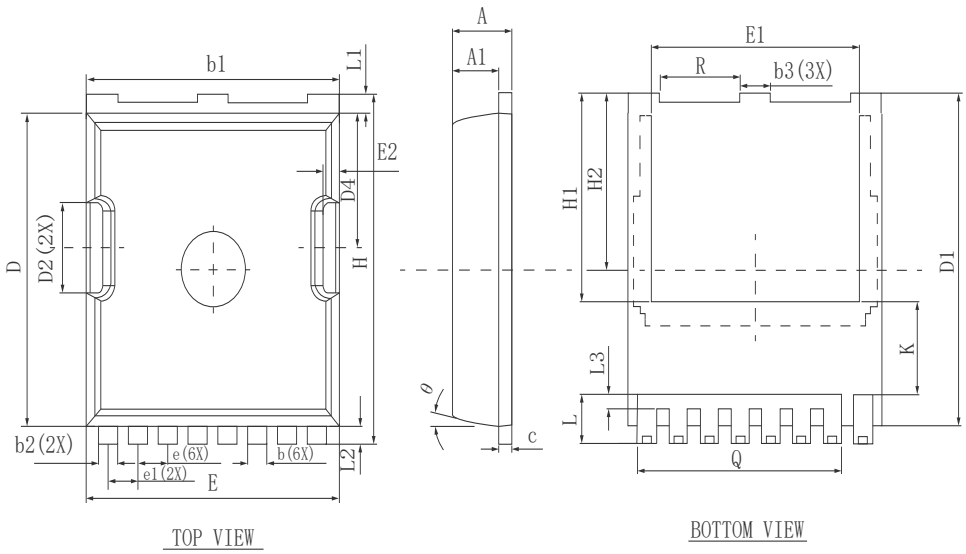
●Dimensions（TOLL）

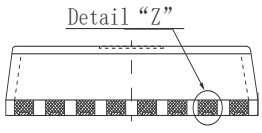


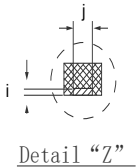




Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	2.20	2.30	2.40
b	0.65	0.75	0.85
C	0.508 REF		
D	10.25	10.40	10.55
D1	2.85	3.00	3.15
D2	2.95	3.10	3.25
D3	0.75 REF		
E	9.75	9.90	10.05
E1	9.65	9.80	9.95
E2	8.95	9.10	9.25
E3	7.25	7.40	7.55
e	1.20 BSC		
F	1.05	1.20	1.35
H	11.55	11.70	11.85
H1	6.03	6.18	6.33
H2	6.85	7.00	7.15
H3	3.00 BSC		
L	1.55	1.70	1.85
L1	0.55	0.70	0.85
L2	0.45	0.60	0.75
L3	1.00	1.15	1.30
M	0.08 REF		
β	8°	10°	12°
K	4.25	4.40	4.55



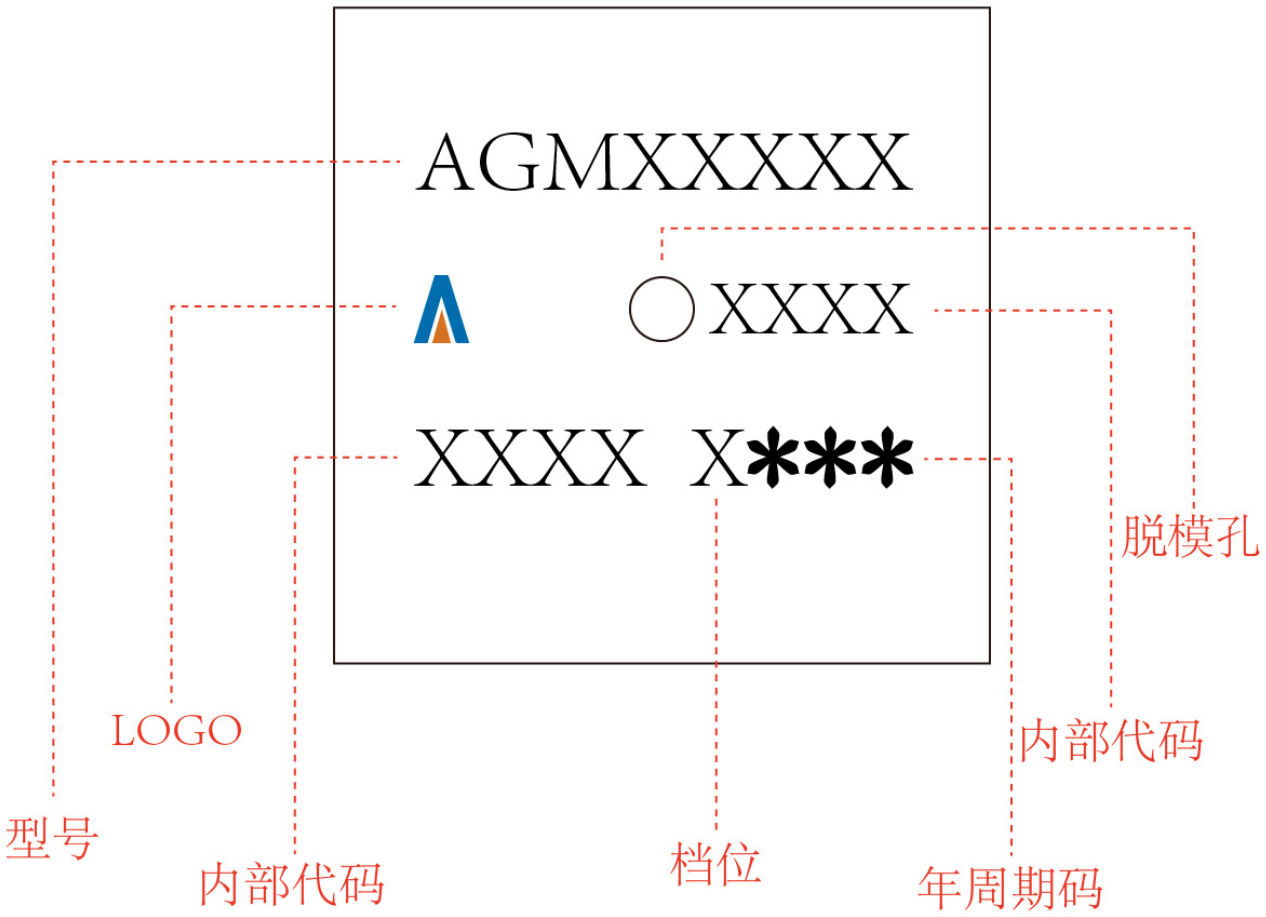




SYMBOL	MILLIMETER		
	MIN.	NOM.	MAX.
A	2.200	2.300	2.400
A1	1.700	1.800	1.900
b	0.600	0.700	0.800
b1	9.700	9.800	9.900
b2	0.650	0.750	0.850
b3	1.100	1.200	1.300
c	0.400	0.500	0.600
D	10.300	10.400	10.500
D1	11.000	11.100	11.200
D2	3.200	3.300	3.400
D4	4.470	4.570	4.670
E	9.800	9.900	10.000
E1	8.000	8.100	8.200
E2	0.500	0.600	0.700
e	1.200 BSC		
e1	1.225 BSC		
H	11.600	11.700	11.800
H1	6.950 BSC		
H2	5.900 BSC		
i	0.100 REF.		
j	0.350 REF.		
K	3.100 REF.		
L	1.550	1.650	1.750
L1	0.600	0.700	0.800
L2	0.500	0.600	0.700
L3	0.400	0.500	0.600
Q	7.950 REF.		
R	3.000	3.100	3.200
θ	10° REF.		

TOLL

Marking Instructions:



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This document is the fifth version issued on July 10th, 2024. This document replaces all previously provided information.