● General Description

The AGM18N10A 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
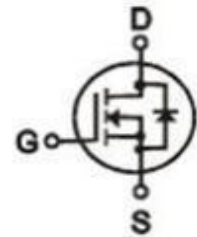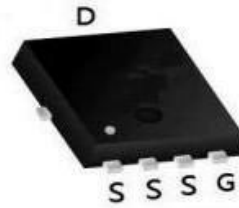
■ 100% Avalanche tested

■ 100% DVDS tested

● Application

■ MB/VGA Vcore

■ SMPS 2nd Synchronous Rectifier

■ POL application

■ BLDC Motor driver

Product Summary

BVDSS	RDSON	ID
100V	17mΩ	35A

PDFN5*6 Pin Configuration

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM18N10A	AGM18N10A	PDFN5*6	330mm	12mm	3000

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

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℃) **(Note 1)**	35	A
	Drain Current-Continuous(Tc=100℃)	21	A
IDM (pluse)	Drain Current-Continuous@ Current-Pulsed **(Note 2)**	140	A
PD	Maximum Power Dissipation(Tc=25℃)	45	w
	Maximum Power Dissipation(Tc=100℃)	18	w
EAS	Avalanche energy **(Note 3)**	64	mJ
TJ,TSTG	Operating Junction and Storage Temperature Range	-55 To 150	℃

Table 2.   Thermal Characteristic

Symbol	Parameter	Typ	Max	Unit
RθJA	Thermal Resistance Junction-ambient (Steady State)[1]	--	65	℃/W
RθJC	Thermal Resistance Junction-Case[1]	---	2.78	℃/W

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

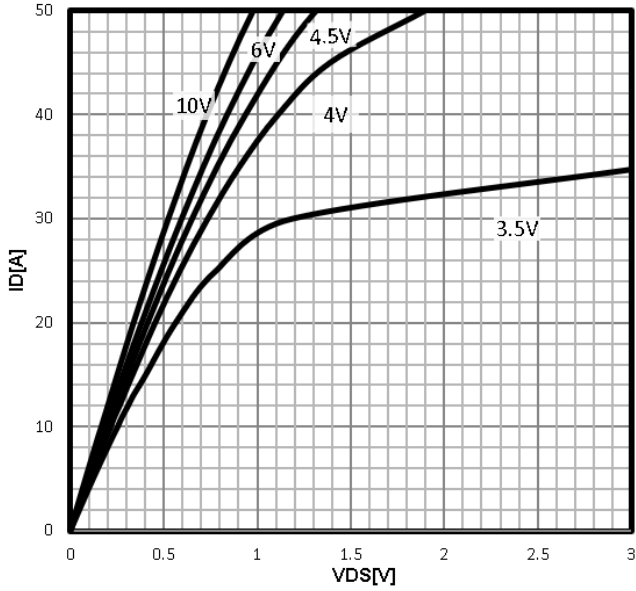| Symbol	Parameter	Conditions	Min	Typ	Max	Unit
On/Off States						
BVDSS	Drain-Source Breakdown Voltage	VGS=0V ID=250μA	100	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=100V,VGS=0V	--	--	1	μA
IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS,ID=250μA	1.2	1.6	2.2	V
gFS	Forward Transconductance	VDS=5V,ID=8A	--	13	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=10V, ID=12A	--	17	21	mΩ
		VGS=4.5V, ID=8A	--	20	26	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=50V,VGS=0V, F=1MHZ	--	573	--	pF
Coss	Output Capacitance		--	166	--	pF
Crss	Reverse Transfer Capacitance		--	5.3	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	4.5	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=10V,VDS=50V, ID=10A,RGEN=4Ω	--	13	--	nS
tr	Turn-on Rise Time		--	16	--	nS
td(off)	Turn-Off Delay Time		--	23	--	nS
tf	Turn-Off Fall Time		--	6	--	nS
Qg	Total Gate Charge	VGS=10V, VDS=50V, ID=10A	--	12.5	--	nC
Qgs	Gate-Source Charge		--	1.9	--	nC
Qgd	Gate-Drain Charge		--	3.0	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	35	A
VSD	Forward on Voltage	VGS=0V,IS=12A	--	--	1.2	V
trr	Reverse Recovery Time	IF=12A , dI/dt=100A/μs , TJ=25℃	--	43	--	ns
Qrr	Reverse Recovery Charge		--	87	--	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=50V,Vgs=10V，ID=16A, L=0.5mH,RG=25ohm
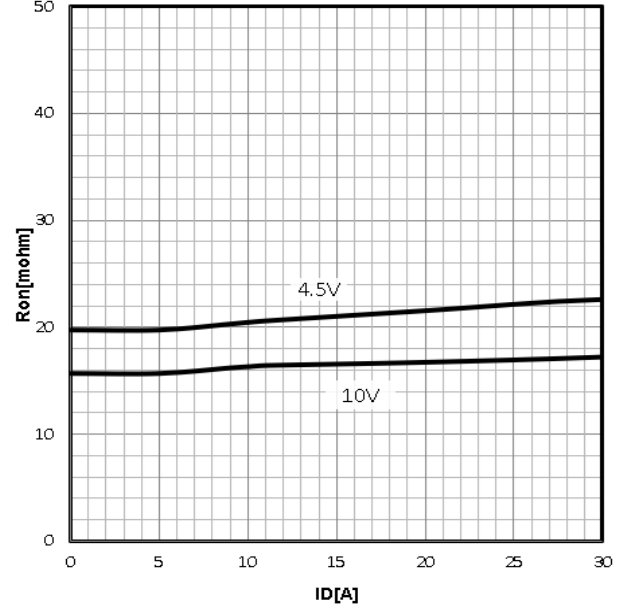
Characteristics Curve：

Typ. output characteristics
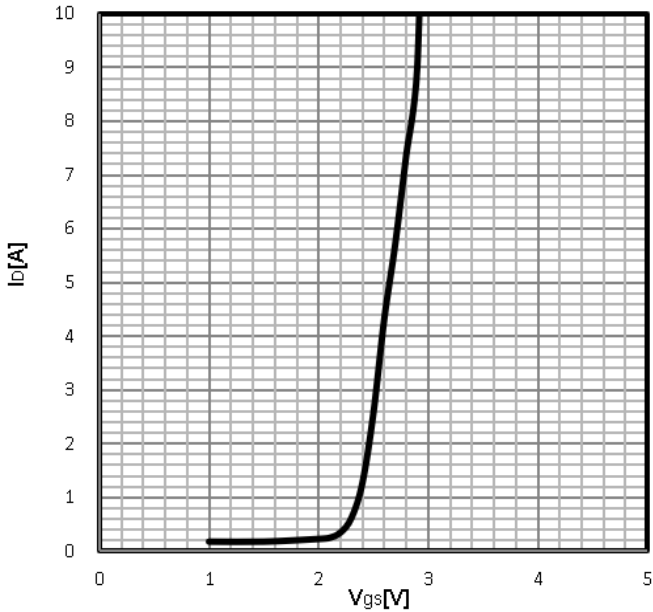$I_D=f(V_{DS})$

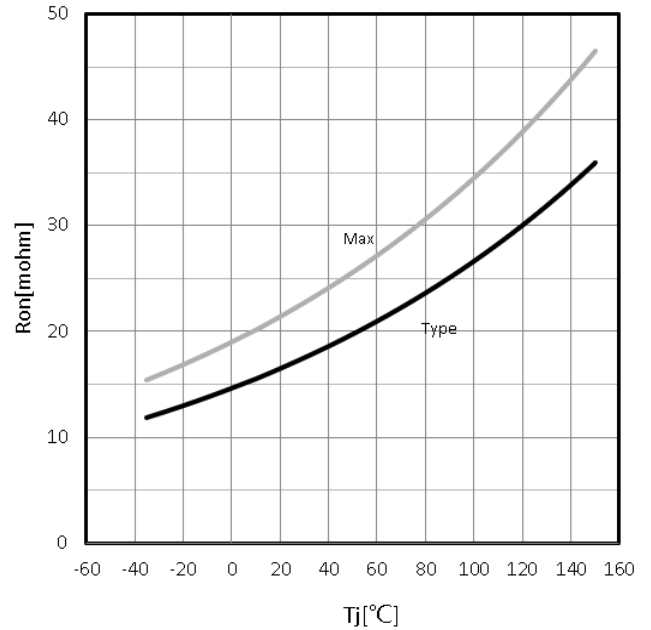**Typ. drain-source on resistance**
$R_{DS(on)}=f(I_D)$
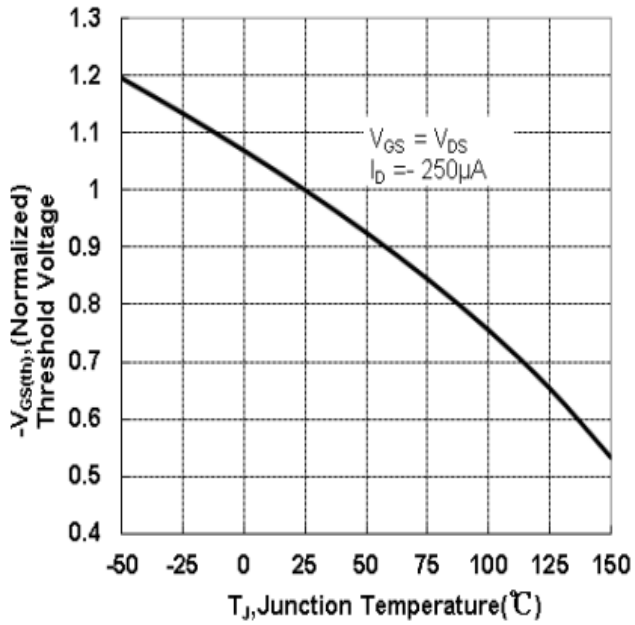

Typ. transfer characteristics
$I_D=f(V_{GS})$

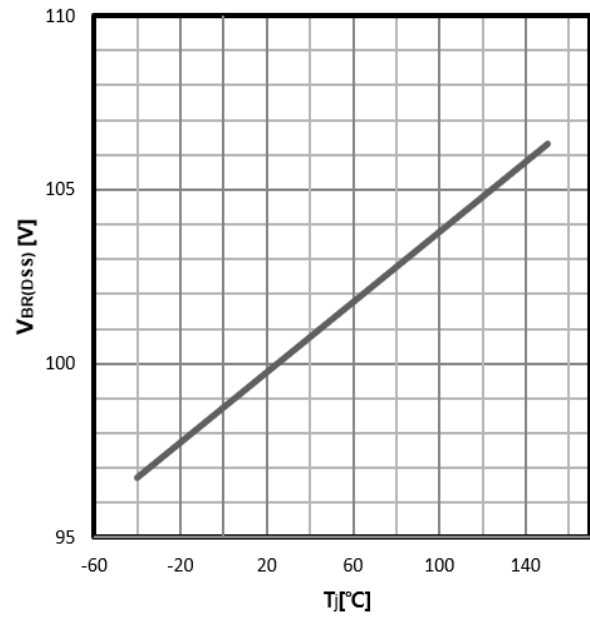**Drain-source on-state resistance**
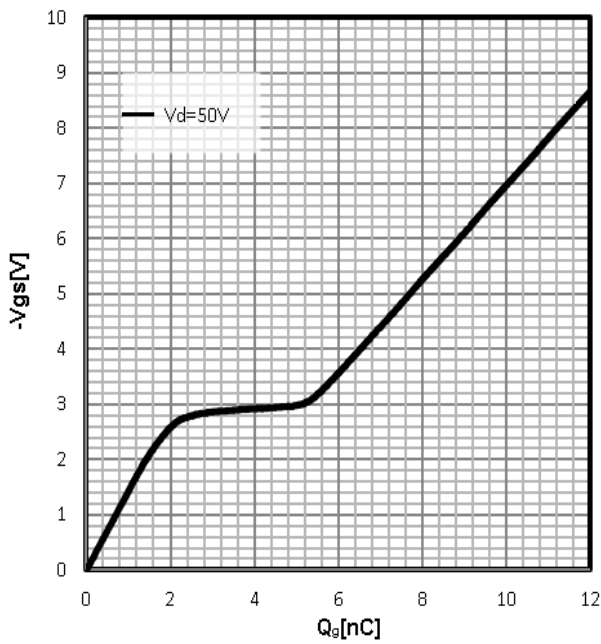$R_{DS(on)}=f(T_j); I_D=10A; V_{GS}=10V$

Gate Threshold Voltage
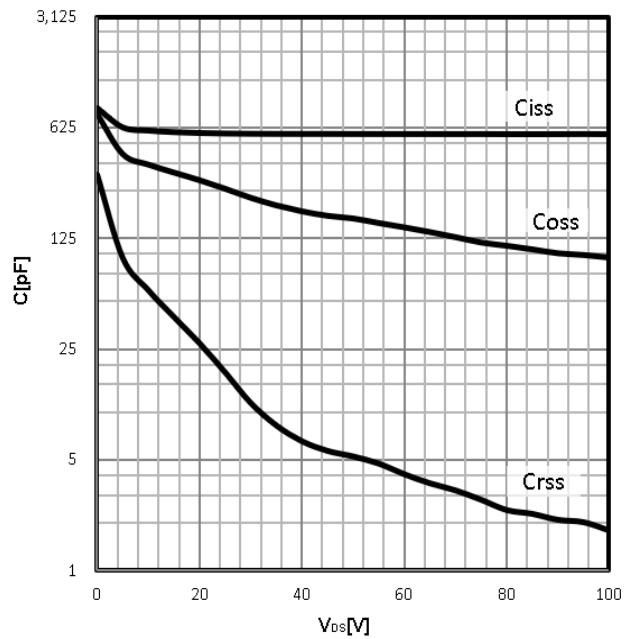$V_{TH}=f(T_j)$; I_D=250uA

Drain-source breakdown voltage
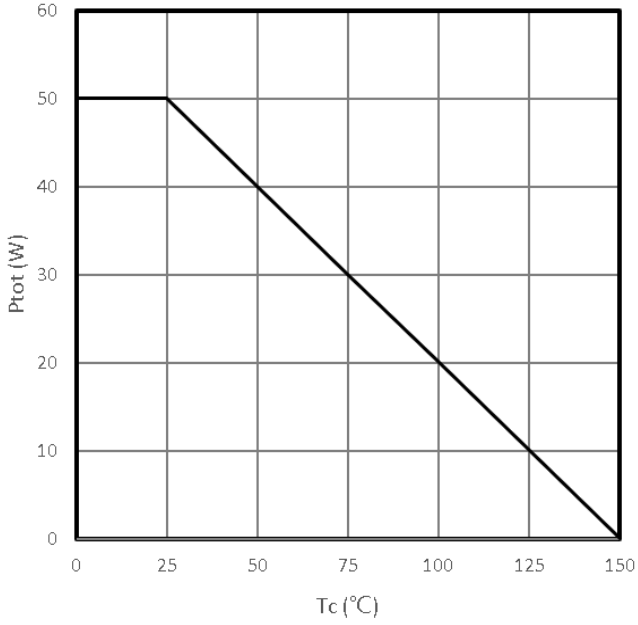$V_{BR(DSS)}=f(T_j)$; I_D=250uA

Typ. gate charge
$V_{GS}=f(Q_g)$; I_D=10A
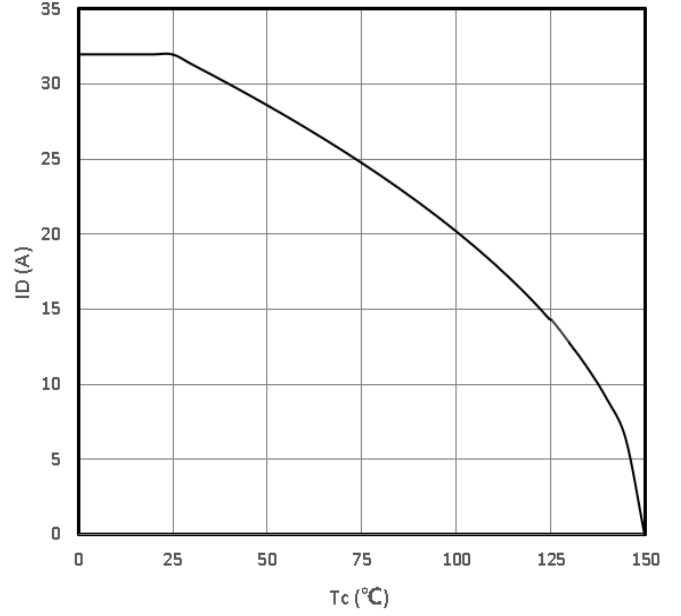

Typ. capacitances
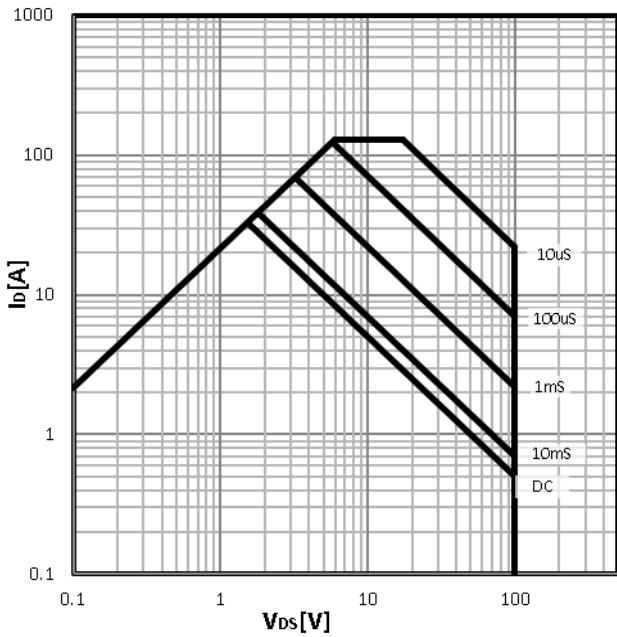C =f(V_{DS}); V_{GS}=0V; f =1MHz
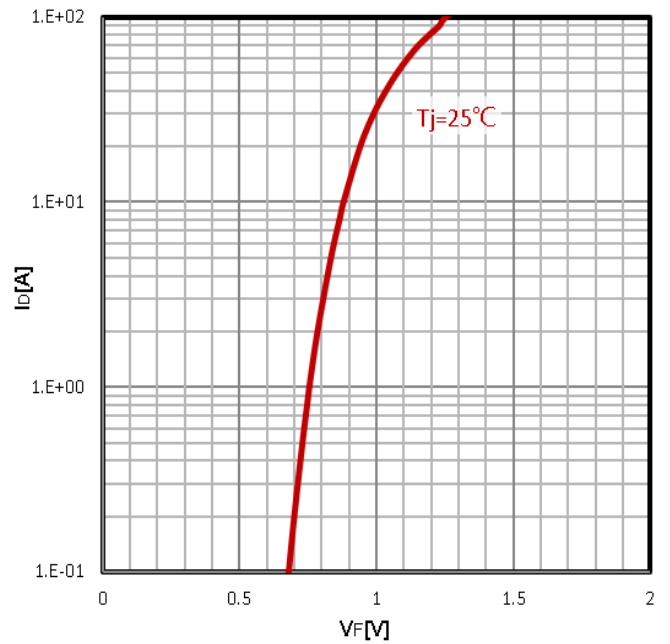
Power Dissipation
$P_{tot}=f(T_C)$

Maximum Drain Current
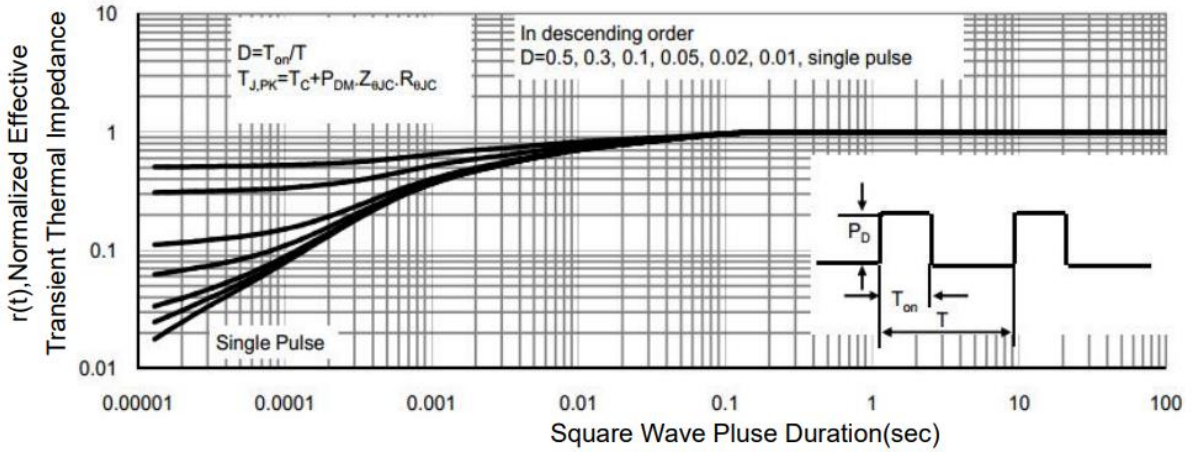$I_D=f(T_C)$

Safe operating area
$I_D=f(V_{DS})$

Body Diode Forward Voltage Variation
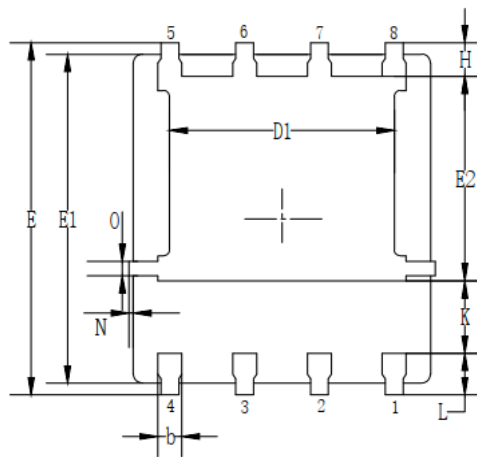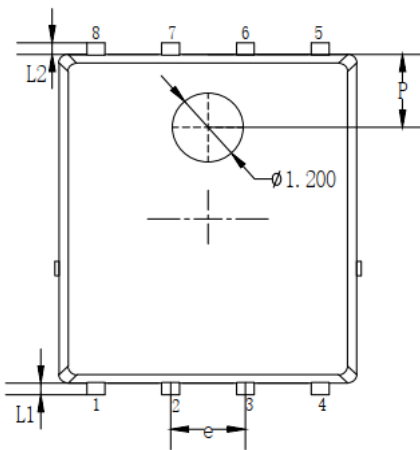$I_F=f(V_{GS})$

Max. transient thermal impedance

$$Z_{thJC}=f(t_p)$$

In descending order
D=0.5, 0.3, 0.1, 0.05, 0.02, 0.01, single pulse

$D=T_{on}/T$
$T_{J,PK}=T_C+P_{DM} \cdot Z_{\theta JC} \cdot R_{\theta JC}$

Single Pulse

Square Wave Pluse Duration(sec)

●**Dimensions（PDFN5*6）**

SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	0.900	1.000	1.100
A1	0.254 REF.		
A2	0~0.05		
D	4.824	4.900	4.976
D1	3.910	4.010	4.110
D2	4.924	5.000	5.076
E	5.924	6.000	6.076
E1	3.375	3.475	3.575
E2	5.674	5.750	5.826
b	0.350	0.400	0.450
e	1.270 TYP.		
L	0.534	0.610	0.686
L1	0.424	0.500	0.576
L2	1.800 REF.		
k	1.190	1.290	1.390
H	0.549	0.625	0.701
θ	8°	10°	12°
φ	1.100	1.200	1.300
d			0.100

Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.90	1.05	1.20
b	0.35	0.40	0.50
C	0.20	0.25	0.35
D	4.90	5.05	5.20
D1	3.72	3.82	3.92
E	6.00	6.15	6.30
E1	5.60	5.75	5.90
E2	3.47	3.57	3.67
e	1.27 BSC.		
H	0.48	0.58	0.68
K	1.17	1.27	1.37
L	0.64	0.74	0.84
L1/L2	0.20 REF.		
θ	8°	10°	12°
M	0.08 REF.		
N	0	-	0.15
O	0.25 REF.		
P	1.28 REF.		

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