General Description

The AGM30P16AP 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

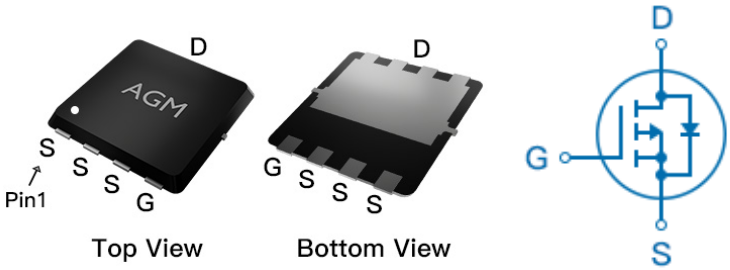
Application

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

Product Summary

BVDSS	RDSON	ID
-30V	11mΩ	-21A

PDFN3.3*3.3 Pin Configuration



Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
AGM30P16AP	AGM30P16AP	PDFN3.3*3.3	330mm	12mm	5000

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

Symbol	Parameter	Value	Unit
VDS	Drain-Source Voltage (VGS=0V)	-30	V
VGS	Gate-Source Voltage (VDS=0V)	±20	V
ID	Drain Current-Continuous(Tc=25℃) **(Note 1)**	-21	A
	Drain Current-Continuous(Tc=100℃)	-12.6	A
IDM (pluse)	Drain Current-Pulsed **(Note 2)**	-84	A
PD	Maximum Power Dissipation(Tc=25℃)	30	w
	Maximum Power Dissipation(Tc=100℃)	12	w
EAS	Avalanche energy **(Note 3)**	110	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]	---	62	℃/W
RθJC	Thermal Resistance Junction-Case[1]	---	4.2	℃/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	-30	--	--	V
IDSS	Zero Gate Voltage Drain Current	VDS=-30V,VGS=0V	--	--	-1.0	μA
IGSS	Gate-Body Leakage Current	VGS=±20V,VDS=0V	--	--	±100	nA
VGS(th)	Gate Threshold Voltage	VDS=VGS,ID=-250μA	-1.2	-1.5	-2.2	V
gFS	Forward Transconductance	VDS=-5V,ID=-6A	--	8	--	S
RDS(on)	Drain-Source On-State Resistance	VGS=-10V, ID=-10A	--	11	16	mΩ
		VGS=-4.5V, ID=-6A	--	15.5	21	mΩ
Dynamic Characteristics						
Ciss	Input Capacitance	VDS=-15V,VGS=0V F=1MHZ	--	1350	--	pF
Coss	Output Capacitance		--	194	--	pF
Crss	Reverse Transfer Capacitance		--	158	--	pF
Rg	Gate resistance	VGS=0V, VDS=0V,f=1.0MHz	--	14	--	Ω
Switching Times						
td(on)	Turn-on Delay Time	VGS=-10V,VDS=-25V, RL=0.75Ω,RGEN=3.3Ω	--	10.5	--	nS
tr	Turn-on Rise Time		--	11	--	nS
td(off)	Turn-Off Delay Time		--	51	--	nS
tf	Turn-Off Fall Time		--	28	--	nS
Qg	Total Gate Charge	VGS=-10V, VDS=-25V, ID=-15A	--	14	--	nC
Qgs	Gate-Source Charge		--	5.2	--	nC
Qgd	Gate-Drain Charge		--	5.0	--	nC
Source-Drain Diode Characteristics						
ISD	Source-Drain Current(Body Diode)		--	--	-21	A
VSD	Forward on Voltage	VGS=0V,IS=-10A	--	--	-1.2	V
trr	Reverse Recovery Time	IF=-10A , dI/dt=100A/μs , TJ=25℃	--	--	--	ns
Qrr	Reverse Recovery Charge		--	--	--	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=-15V,Vgs=-10V,ID=-21A,L=0.5mH,RG=25ohm

Typical Electrical and Thermal Characteristics (Curves)

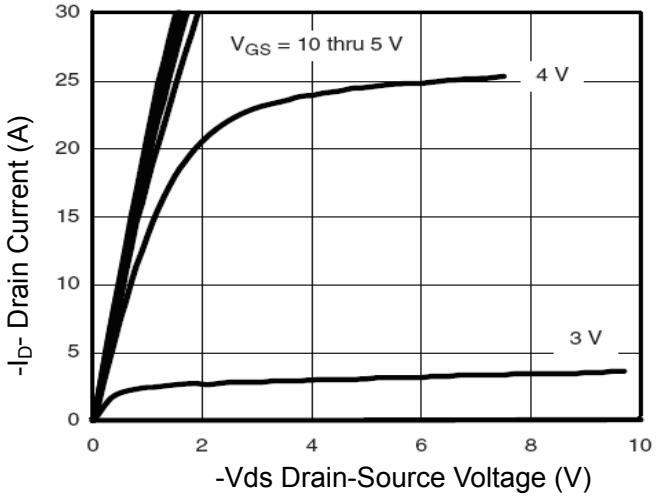


Figure 1 Output Characteristics

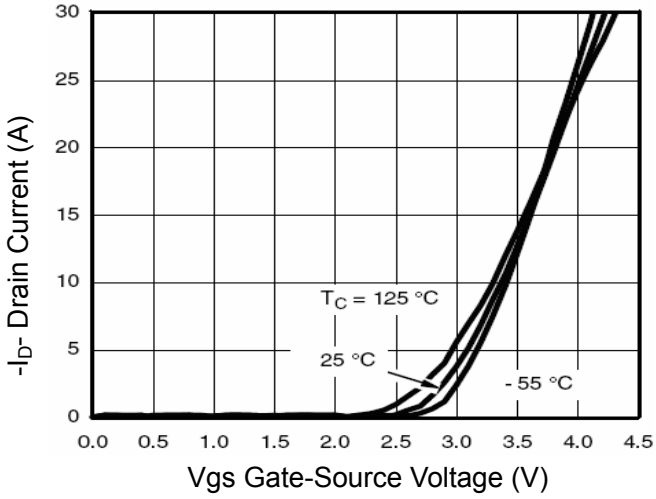


Figure 2 Transfer Characteristics

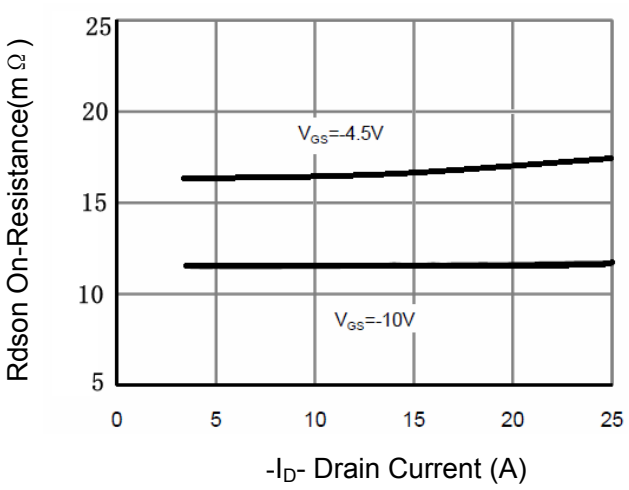


Figure 3 Rdson- Drain Current

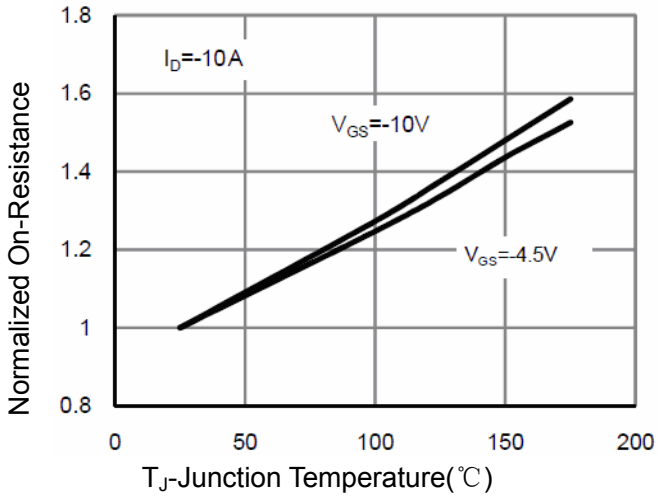


Figure 4 Rdson-Junction Temperature

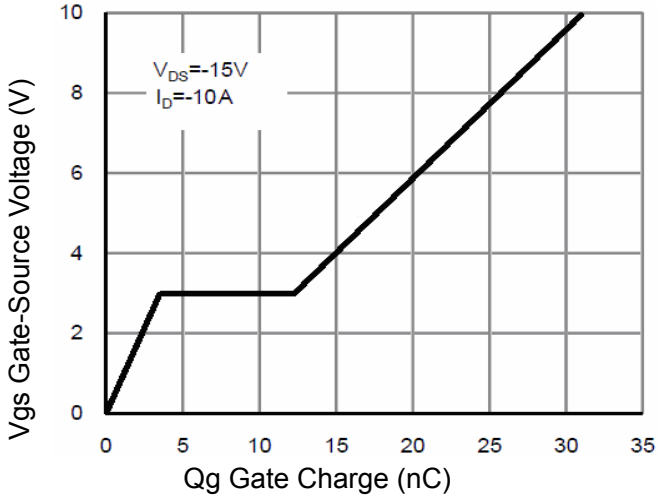


Figure 5 Gate Charge

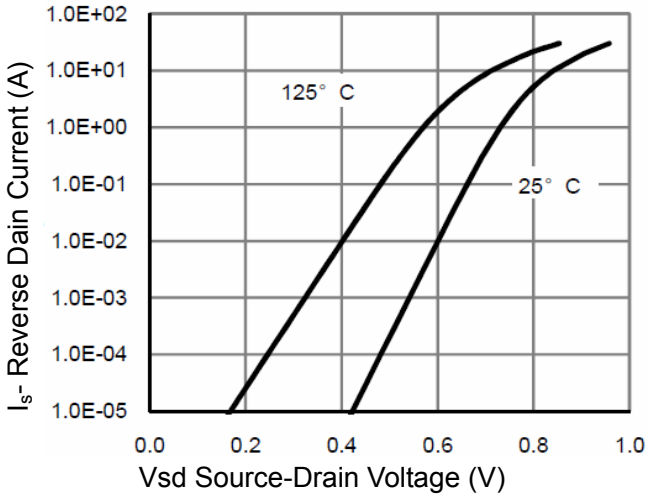


Figure 6 Source- Drain Diode Forward

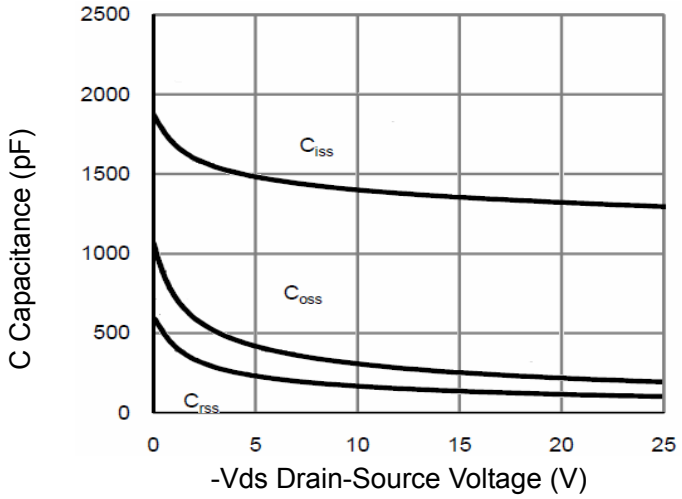


Figure 7 Capacitance vs Vds

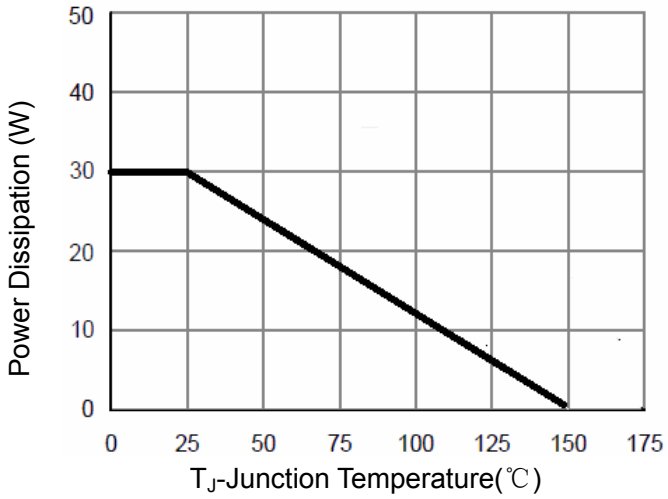


Figure 9 Power De-rating

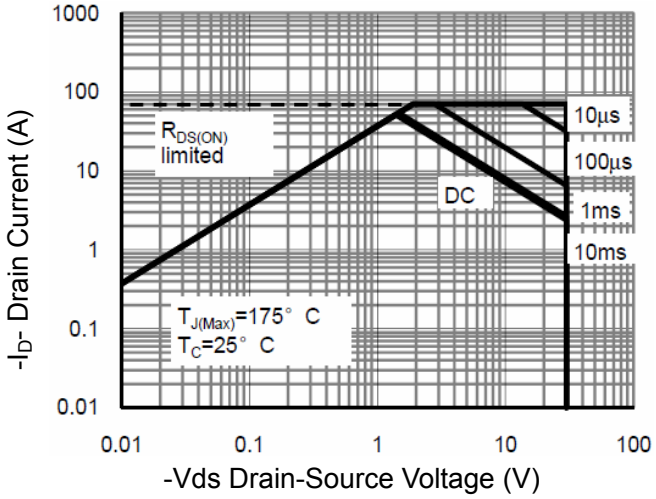


Figure 8 Safe Operation Area

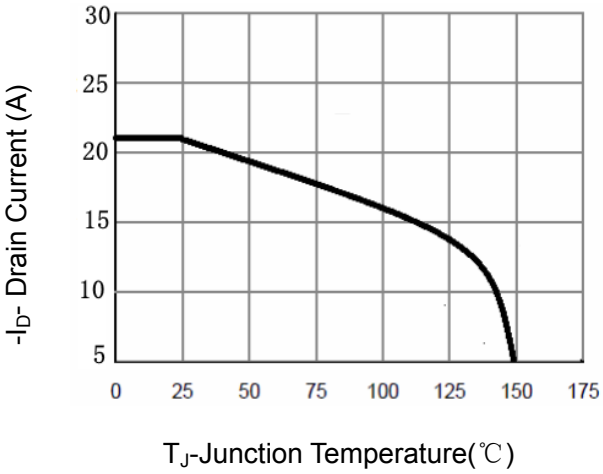


Figure 10 ID Current Derating

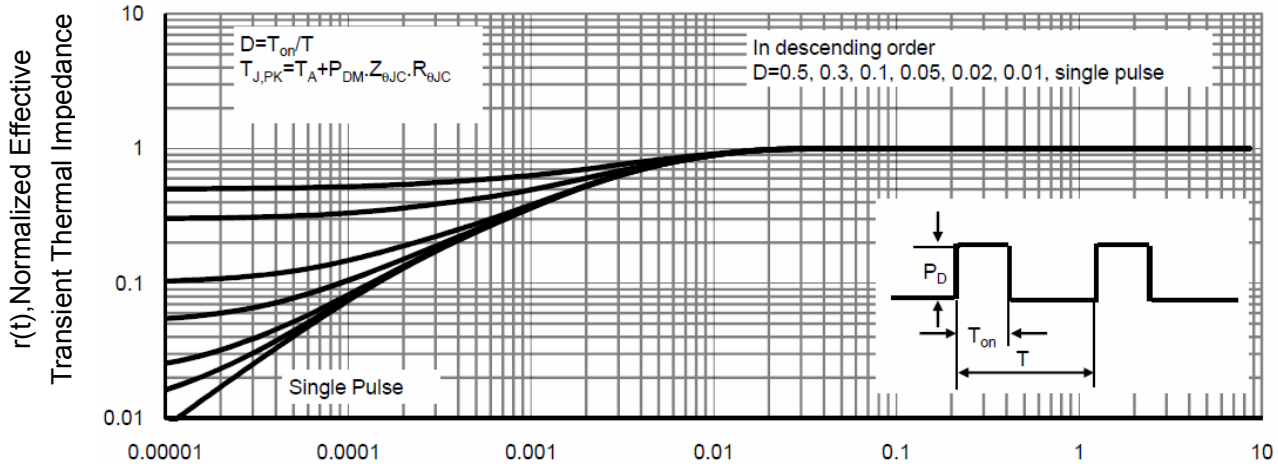
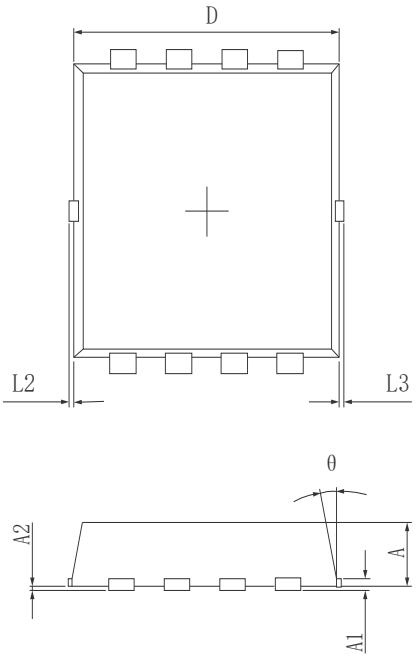
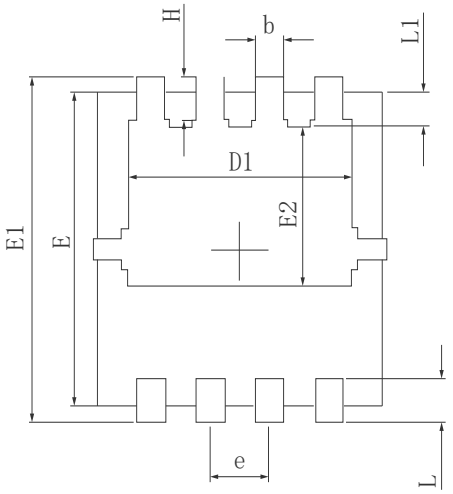


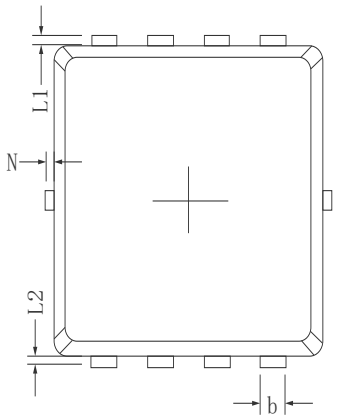
Figure 11 Normalized Maximum Transient Thermal Impedance

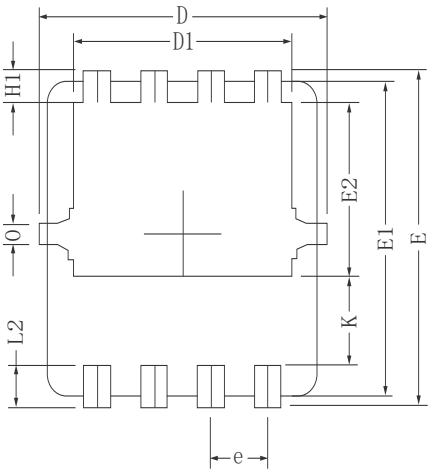
●Dimensions（PDFN3.3*3.3）

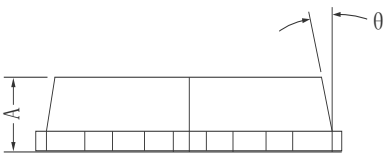


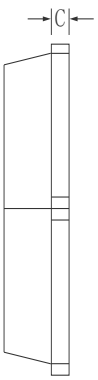


SYMBOL	MILLIMETER		
	MIN	Typ.	MAX
A	0.700	0.800	0.900
A1	0.152REF.		
A2	0~0.05		
D	3.000	3.100	3.200
D1	2.300	2.450	2.600
E	2.900	3.000	3.100
E1	3.150	3.300	3.450
E2	1.320	1.520	1.720
b	0.200	0.300	0.400
e	0.550	0.650	0.750
L	0.300	0.400	0.500
L1	0.180	0.330	0.480
L2	0~0.100		
L3	0~0.100		
H	0.315	0.415	0.515
θ	8°	10°	12°





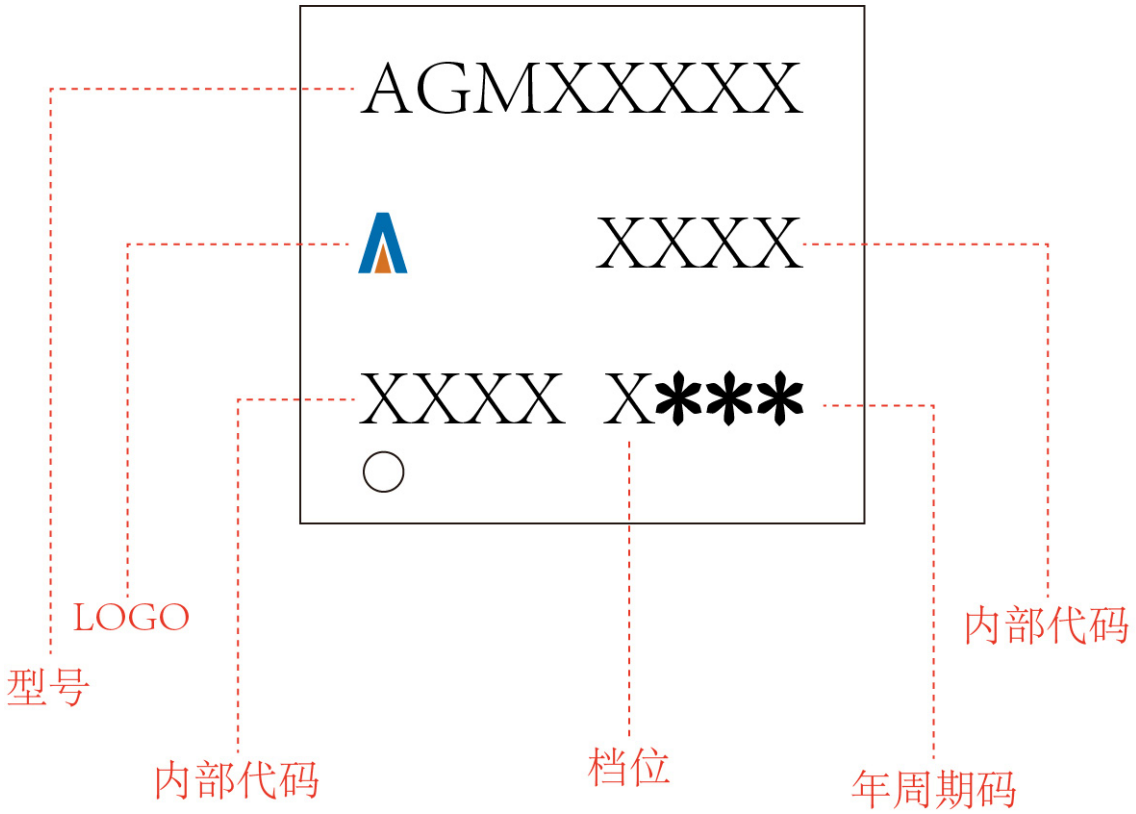




Symbols	Millimeters		
	MIN.	NOM.	MAX.
A	0.65	0.75	0.85
b	0.25	0.30	0.35
C	0.15	0.20	0.25
D	3.00	3.10	3.20
D1	2.40	2.50	2.60
E	3.20	3.30	3.40
E1	3.00	3.10	3.20
E2	1.60	1.70	1.80
e	0.65 BSC.		
H1	0.21	0.31	0.41
H2	0.30	0.40	0.50
K	0.78	0.88	0.98
L1/L2	0.10 REF.		
θ	11°	12°	13°
N	0	-	0.15
O	0.2 REF.		

PDFN3.3*3.3

Marking Instructions:



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