FDBL0630N150

MOSFET – N-Channel, POWERTRENCH®

150 V, 169 A, 6.3 mΩ

特性

- 典型值 $r_{DS(on)}$ = 5 mΩ (在 V_{GS} = 10 V， I_D = 80 A)
- Typ $Q_{g(tot)}$ = 70 nC 在 V_{GS} = 10 V， I_D = 80 A
- UIS 能力
- This Device is Pb−Free and is RoHS Compliant

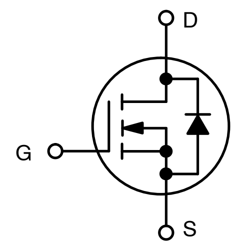
应用

- 工业电机驱动器
- 工业电源
- 工业自动化
- 电动工具
- 电池保护
- 太阳能逆变器
- UPS 和能源逆变器
- 储能
- 负载开关

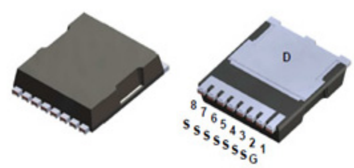
ON Semiconductor®

www.onsemi.cn

V_{DSS}	$r_{DS(ON)}$ MAX	I_D MAX
150 V	6.3 mΩ @ 10 V	169 A

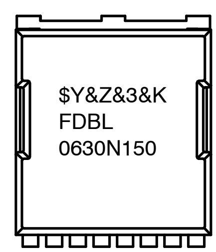


MOSFET — N−Channel



H−PSOF8L 11.68x9.80
CASE 100CU

MARKING DIAGRAM



$Y	=	ON Semiconductor Logo
&Z	=	Assembly Plant Code
&3	=	Date Code
&K	=	Lot Run Traceability Code
FDBL0630N150	=	Specific Device Code

最大额定值 (T_J = 25°C, 除非另有说明)

符号	参数	额定值	单位
VDSS	漏极－源极电压	150	V
VGS	栅极－源极电压	±20	V
I_D	漏极电流－连续 (V_{GS} = 10 V) (注 1) T_C = 25°C	169	A
	脉冲漏电流 T_C = 25°C	见图 3	
EAS	单脉冲雪崩能量 (注 2)	502	mJ
P_D	功耗	500	W
	超过 25°C 时降额	3.3	W/°C
T_J, T_{STG}	工作和存储温度	−55 to +175	°C
$R_{\theta JC}$	结至壳体的热阻	0.3	°C/W
$R_{\theta JA}$	结至环境热阻最大值 (注 3)	43	°C/W

Stresses exceeding those listed in the Maximum Ratings table may damage the device. If any of these limits are exceeded, device functionality should not be assumed, damage may occur and reliability may be affected.

(参考译文)

如果电压超过最大额定值表中列出的值范围，器件可能会损坏。如果超过任何这些限值，将无法保证器件功能，可能会导致器件损坏，影响可靠性。

1. 电流受到结温的限制。
2. 电感充电期间，起始 T_J = 25°C, L = 0.24 mH, I_{AS} = 64 A, V_{DD} = 100 V，雪崩时间内，V_{DD} = 100 V
3. $R_{\theta JA}$ 等于结至壳体和壳体至环境热阻之和，其中，壳体热参考定义为漏极引脚的焊料安装表面。$R_{\theta JC}$ 具备设计保证，其中 $R_{\theta JA}$ 由用户的电路板设计确定。此处的最大额定值基于安装在 2 oz 铜的 1 in^2 焊盘上。

ORDERING INFORMATION

See detailed ordering and shipping information on page 6 of this data sheet.

June, 2019 − Rev. 3

Publication Order Number:
FDBL0630N150CN/D

电气特性 (T_J = 25°C, 除非另有说明)

符号	参数	测试条件		最小值	典型值	最大值	单位
关断特性							
B_{VDSS}	漏极一源极击穿电压	I_D = 250 μA, V_{GS} = 0 V		150	–	–	V
I_{DSS}	漏极一源极漏电流	V_{DS} = 150 V, V_{GS} = 0 V	T_J = 25°C	–	–	1	μA
			T_J = 175°C (注 4)	–	–	1	mA
I_{GSS}	栅极一源极漏电流	V_{GS} = ±20 V		–	–	±100	nA
导通特性							
$V_{GS(th)}$	栅极至源极阀值电压	V_{GS} = V_{DS}, I_D = 250 μA		2.0	2.8	4.0	V
$r_{DS(on)}$	漏极至源极导通电阻	I_D = 80 A, V_{GS} = 10 V	T_J = 25°C	–	5	6.3	mΩ
			T_J = 175°C (注 4)	–	14	17.5	mΩ
动态特性							
C_{iss}	输入电容	V_{DS} = 75V, V_{GS} = 0V, f = 1 MHz		–	5805	–	pF
C_{oss}	输出电容			–	536	–	pF
C_{rss}	反向传输电容			–	16	–	pF
R_g	栅极阻抗	f = 1 MHz		–	2.2	–	Ω
$Q_{g(ToT)}$	在 10 V 的栅极总电荷	V_{GS} = 0 to 10 V, V_{DD} = 75 V, I_D = 80 A		–	70	90	nC
$Q_{g(th)}$	阀值栅极电荷	V_{GS} = 0 to 2 V, V_{DD} = 75 V, I_D = 80 A		–	10.5	13	nC
Q_{gs}	栅极一源极栅极电荷	V_{DD} = 75 V, I_D = 80 A		–	32.5	–	nC
Q_{gd}	栅极一漏极 “米勒” 电荷	V_{DD} = 75 V, I_D = 80 A		–	10	–	nC
开关特性							
t_{on}	导通时间	V_{DD} = 75 V, I_D = 80 A, V_{GS} = 10 V, R_{GEN} = 6 Ω		–	–	80	ns
$t_{d(on)}$	导通延迟时间			–	39	–	ns
t_r	上升时间			–	30	–	ns
$t_{d(off)}$	关断延迟时间			–	70	–	ns
t_f	下降时间			–	23	–	ns
t_{off}	关断时间			–	–	130	ns
漏极一源极二极管特性							
V_{SD}	源极一漏极二极管电压	I_{SD} = 80 A, V_{GS} = 0 V		–	–	1.25	V
		I_{SD} = 40 A, V_{GS} = 0 V		–	–	1.2	V
T_{rr}	反向恢复时间	I_F = 80 A, dI_{SD}/dt = 100 A/μs, V_{DD} = 120 V		–	108	125	ns
Q_{rr}	反向恢复电荷			–	323	467	nC

Product parametric performance is indicated in the Electrical Characteristics for the listed test conditions, unless otherwise noted. Product performance may not be indicated by the Electrical Characteristics if operated under different conditions.
(参考译文)
除非另有说明，“电气特性”表格中列出的是所列测试条件下的产品性能参数。如果在不同条件下运行，产品性能可能与“电气特性”表格中所列性能参数不一致。

4. 其最大值根据 T_J = 175°C 时的设计确定。在生产中，未对此条件测试产品。

典型特性

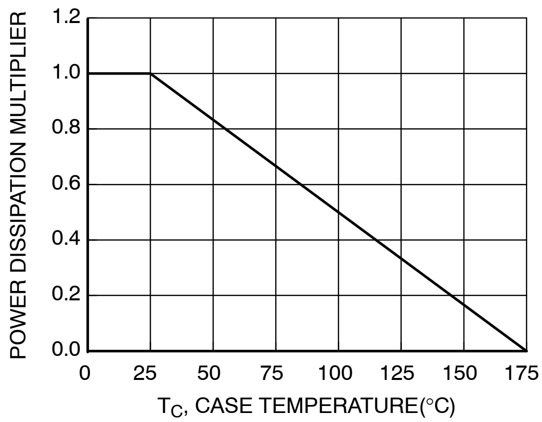


图1. 标准化功耗与壳体温度的关系

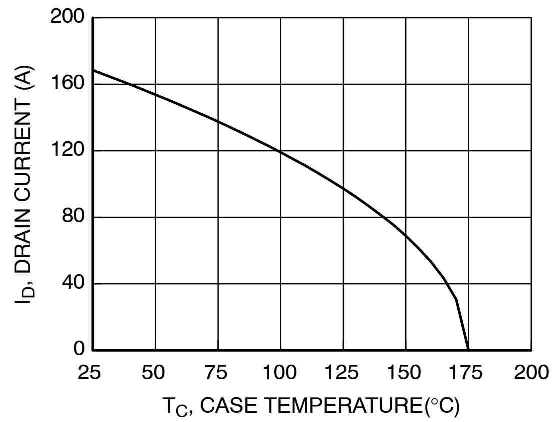


图2. 最大连续漏电流与壳体温度的关系

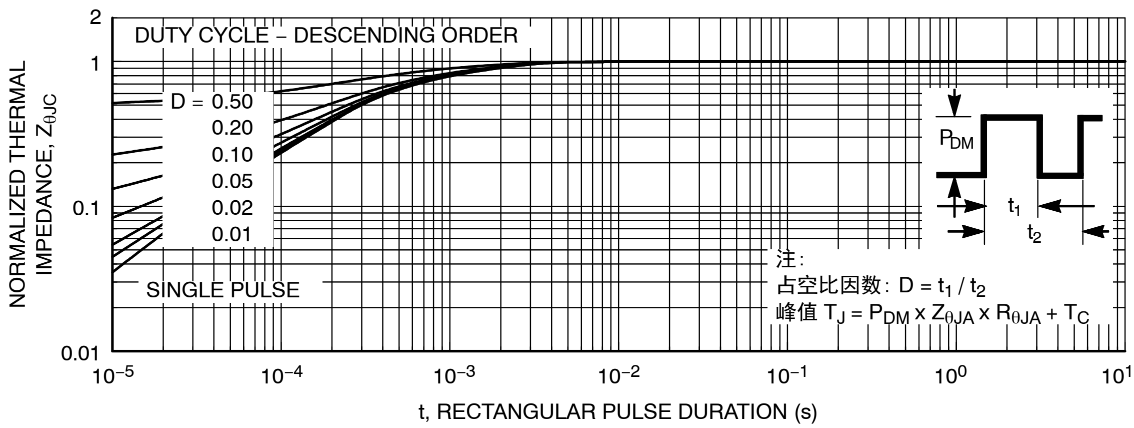


图3. 标准化最大瞬态热阻抗

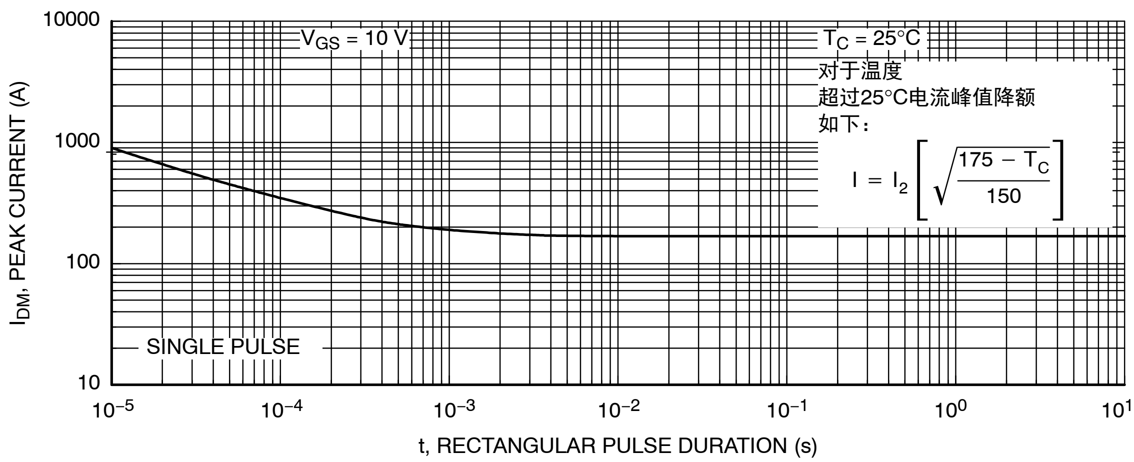


图4. 峰值电流能力

典型特性 (continued)

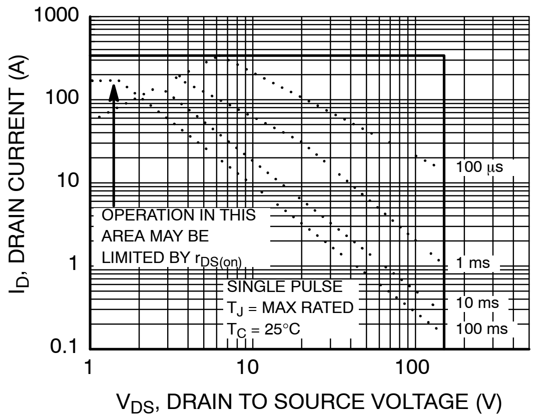
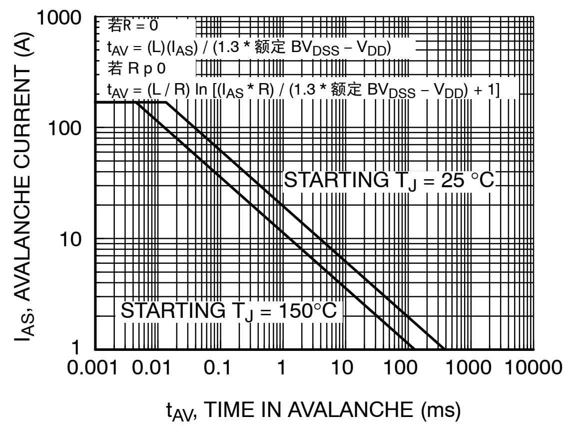


图5. 正向偏压安全工作区



注： 请参考 ON Semiconductor 应用指南 AN7514 和 AN7515

图6. 非箝位感性开关性能

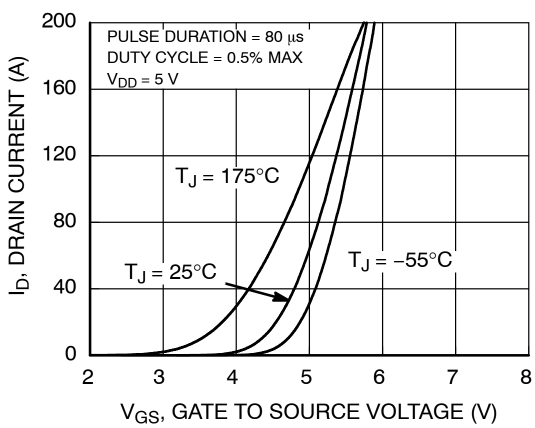


图7. 传递特性

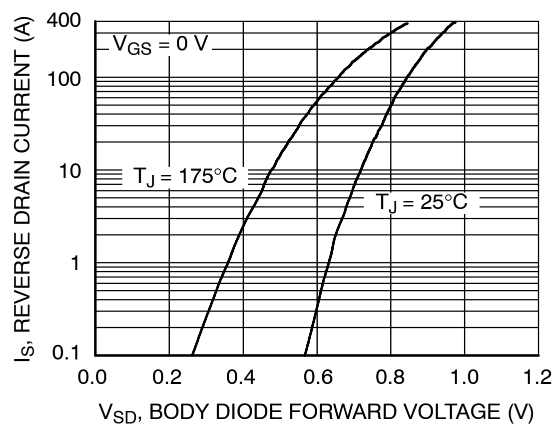


图8. 正向二极管特性

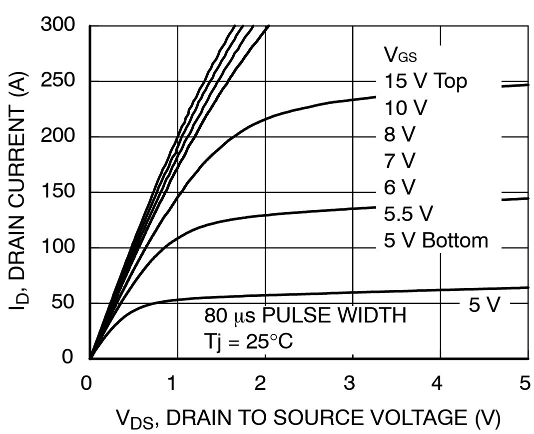


图9. 饱和特性

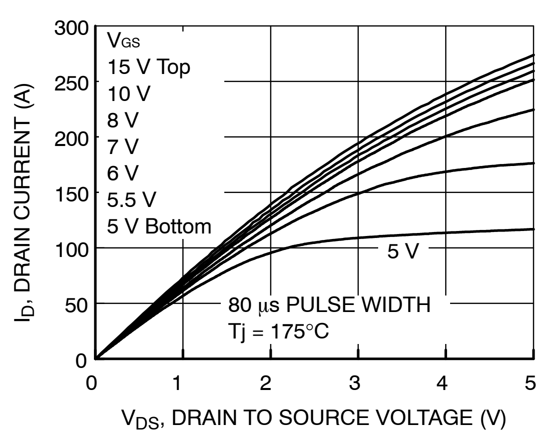


图10. 饱和特性

典型特性 (continued)

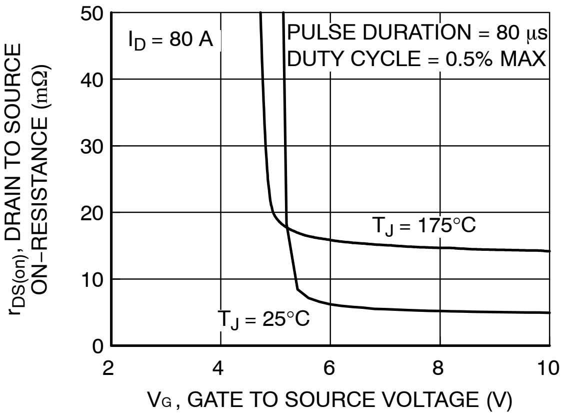


图11. **Rdson与栅极电压**

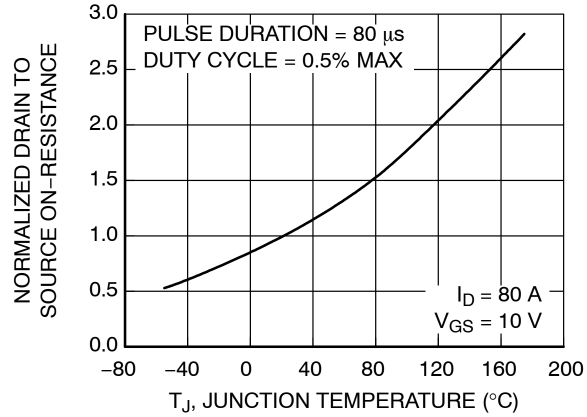


图12. 标准化**Rdson**与结温

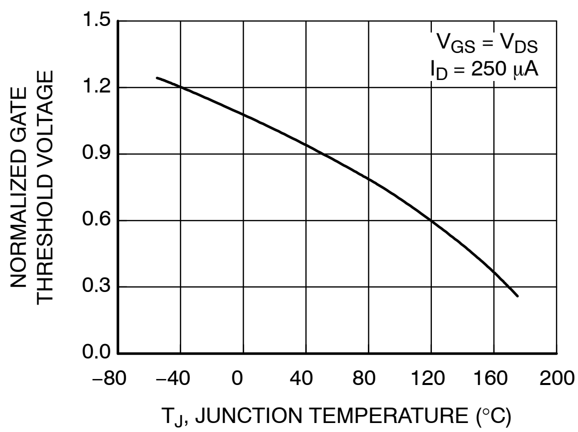


图13. 标准化栅极阀值电压与温度

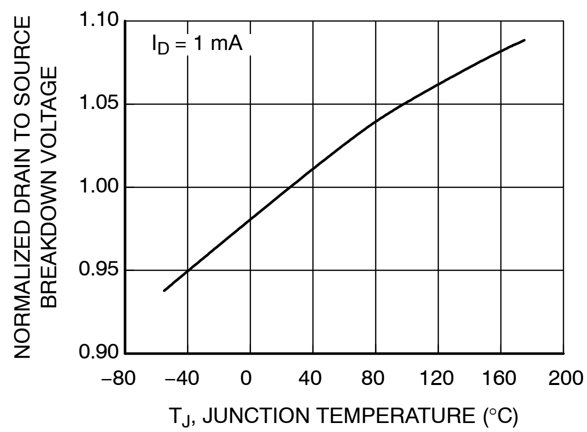


图14. 标准化漏极至源极击穿电压与结温

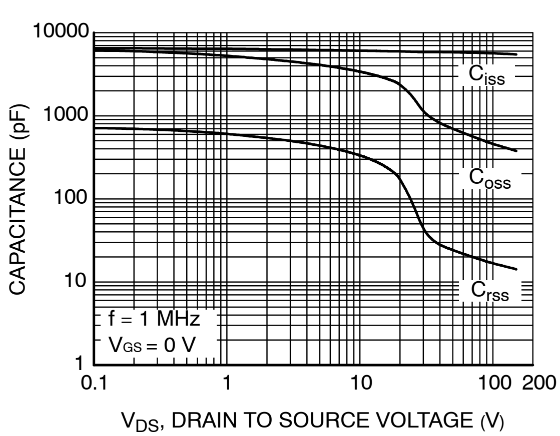


图15. 电容与漏极一源极电压

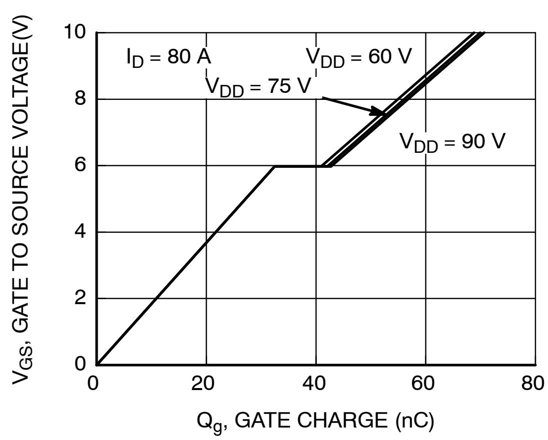
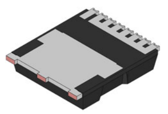


图16. 栅极电荷与栅极一源极电压

订购信息

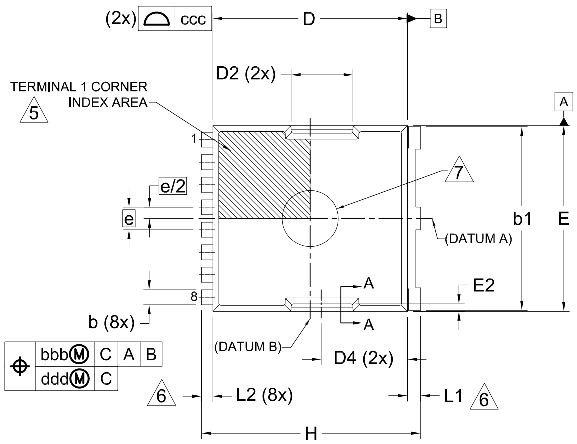
器件	器件标识	封装	包装方法
FDBL0630N150	FDBL0630N150	H−PSOF8L 11.68x9.80 (Pb−Free)	2000 / Tape & Reel

†For information on tape and reel specifications, including part orientation and tape sizes, please refer to our Tape and Reel Packaging Specifications Brochure, BRD8011/D.

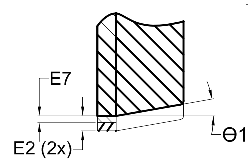


H−PSOF8L 11.68x9.80x2.30, 1.20P
CASE 100CU
ISSUE D

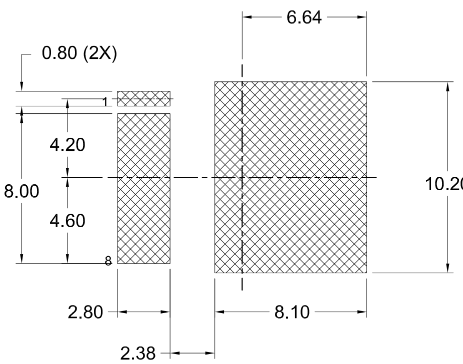
DATE 25 APRIL 2024



TOP VIEW

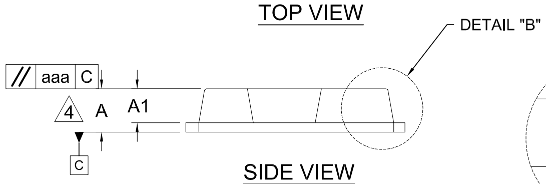


DETAIL "A"
SCALE: 2X

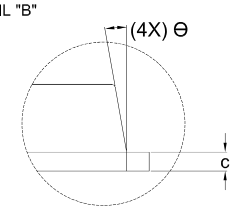


LAND PATTERN RECOMMENDATION

*FOR ADDITIONAL INFORMATION ON OUR PB-FREE STRATEGY AND SOLDERING DETAILS, PLEASE DOWNLOAD THE ONSEMI SOLDERING AND MOUNTING TECHNIQUES REFERENCE MANUAL, SOLDERRM/D.

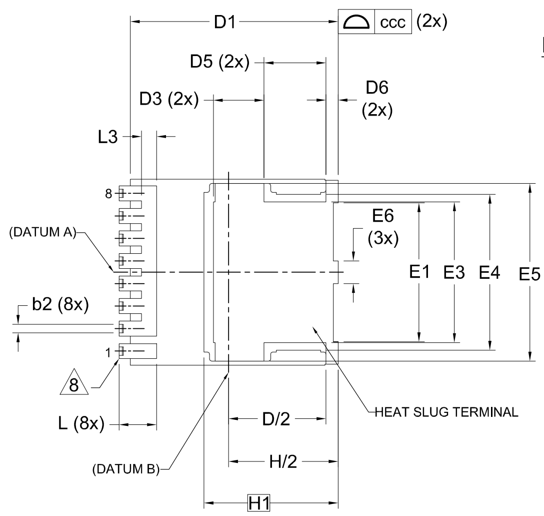


SIDE VIEW



DETAIL "B"
SCALE: 2X

NOTES:
1. PACKAGE STANDARD REFERENCE: JEDEC MO-299, ISSUE B.
2. DIMENSIONING AND TOLERANCING PER ASME Y14.5M, 2018.
3. "e" REPRESENTS THE TERMINAL PITCH.
4. THIS DIMENSION INCLUDES ENCAPSULATION THICKNESS "A1", AND PACKAGE BODY THICKNESS, BUT DOES NOT INCLUDE ATTACHED FEATURES, e.g.,EXTERNAL OR CHIP CAPACITORS. AN INTEGRAL HEATSLUG IS NOT CONSIDERED AS ATTACHED FEATURE.
5. A VISUAL INDEX FEATURE MUST BE LOCATED WITHIN THE HATCHED AREA.
6. DIMENSIONS b1,L1,L2 APPLY TO PLATED TERMINALS.
7. THE LOCATION AND SIZE OF EJECTOR MARKS ARE OPTIONAL.
8. THE LOCATION AND NUMBER OF FUSED LEADS ARE OPTIONAL.

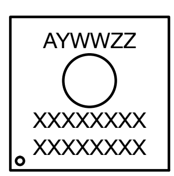


BOTTOM VIEW

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
A	2.20	2.30	2.40
A1	1.70	1.80	1.90
b	0.70	0.80	0.90
b1	9.70	9.80	9.90
b2	0.35	0.45	0.55
c	0.40	0.50	0.60
D	10.28	10.38	10.48
D/2	5.09	5.19	5.29
D1	10.98	11.08	11.18
D2	3.20	3.30	3.40
D3	2.60	2.70	2.80
D4	4.45	4.55	4.65
D5	3.20	3.30	3.40
D6	0.55	0.65	0.75
E	9.80	9.90	10.00
E1	7.30	7.40	7.50
E2	0.30	0.40	0.50
E3	7.40	7.50	7.60
E4	8.20	8.30	8.40

DIM	MILLIMETERS		
	MIN.	NOM.	MAX.
E5	9.36	9.46	9.47
E6	1.10	1.20	1.30
E7	0.15	0.18	0.21
e	1.20 BSC		
e/2	0.60 BSC		
H	11.58	11.68	11.78
H/2	5.74	5.84	5.94
H1	7.15 BSC		
L	1.90	2.00	2.10
L1	0.60	0.70	0.80
L2	0.50	0.60	0.70
L3	0.70	0.80	0.90
Θ	10° REF		
Θ1	10° REF		
aaa	0.20		
bbb	0.25		
ccc	0.20		
ddd	0.20		
eee	0.10		

GENERIC MARKING DIAGRAM*



A = Assembly Location
Y = Year
WW = Work Week
ZZ = Assembly Lot Code
XXXX = Specific Device Code

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “▪”, may or may not be present. Some products may not follow the Generic Marking.

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DESCRIPTION:	H−PSOF8L 11.68x9.80x2.30, 1.20P	PAGE 1 OF 1

ADDITIONAL INFORMATION

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onsemi Website: www.onsemi.com

ONLINE SUPPORT: www.onsemi.com/support
For additional information, please contact your local Sales Representative at www.onsemi.com/support/sales

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