HM4886E

100V_{DS}／±20V_{GS}／3.5A(I_D) Dual N-Channel Enha ncement Mode MOSFET

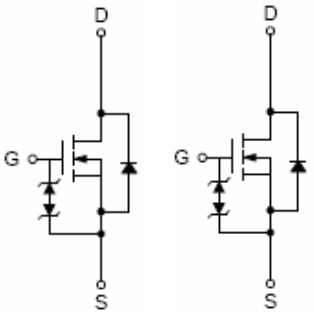
Features

- V_{DSS}=100V／V_{GSS}=±20V／I_D=3.5A
  $R_{DS(ON)}$=105mΩ(Max.)@V_{GS}=10V
  $R_{DS(ON)}$=175mΩ(Max.)@V_{GS}=4.5V
- ESD protect
- Reliable and Rugged
- High Density Cell Design For Ultra Low On-Resistance

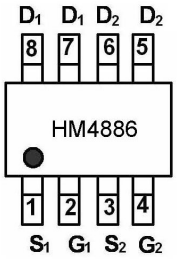
Applications

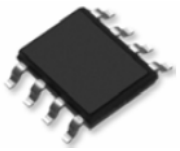
- Synchronous Rectification
- Power Management in Inverter System

Pin Description



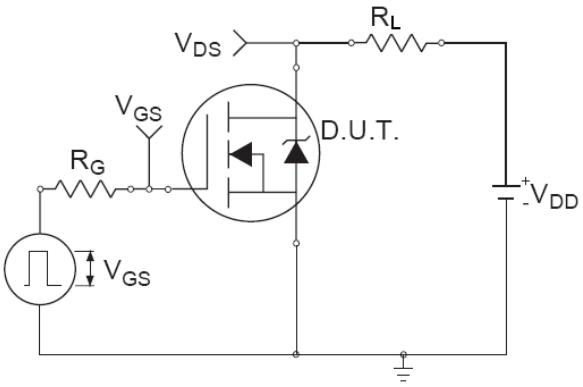
Marking and pin Assignment

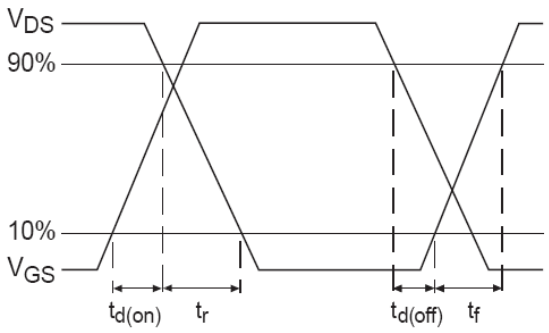




SOP-8 top view

Switching Time Test Circuit and Waveforms





Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
HM4886	HM4886E	SOP-8	-	-	-

Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

Symbol	Parameter		Typical	Unit
V_{DSS}	Drain-Source Voltage		100	V
V_{GSS}	Gate –Source Voltage		±20	V
I_D[1]	Continuous Drain Current	T_C=70°C	2.8	A
		T_C=25°C	3.5	A
I_{DM}[1]	300us Pulsed Drain Current Tested		14	A
I_S[1]	Diode Continuous Forward Current		3	A
E_{AS}[2]	Avalanche Energy, Single Plused(L=0.3mH)		30	mJ
T_J	Operating Junction Temperature		150	°C
T_{STG}	Storage Temperature Range		-55 ~ 150	°C

Note: 1: Surface Mounted on 1in^2 pad area, t ≦ 10sec..
2: UIS tested and pluse width limited by maximum junction temperature 150°C (initial temperature T_J=25°C).

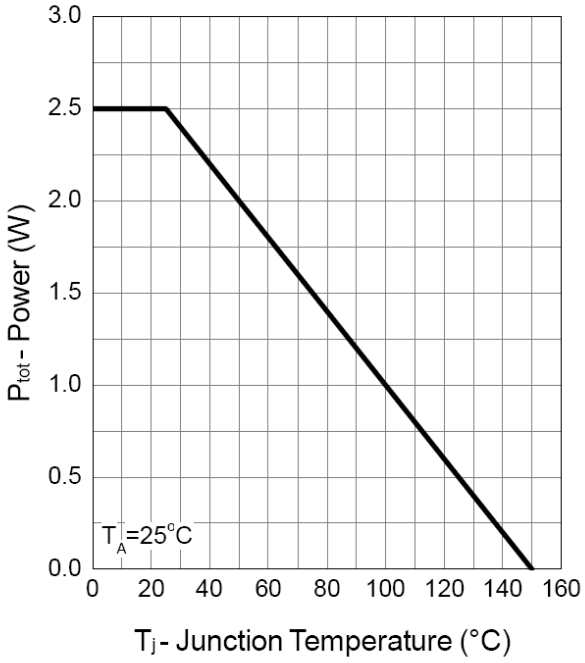
Electrical Characteristics (TA=25°C unless otherwise noted)

Symbol	Parameter	Test Conditions	Min.	Typ	Max.	Unit
Static Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V,I_D=250uA	100			V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-80V,V_{GS}=0V			1	uA
		T_J=85°C			30	
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS},I_D=-250uA	1.5	2	2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±16V, V_{DS}=0V			±10	nA
$R_{DS(on)}$[1]	Drain-Source On-Resistance	V_{GS}=10V, I_D=3.5A		85	105	mΩ
		V_{GS}=4.5V, I_D=2A		135	175	
Diode Characteristics						
V_{SD}[1]	Diode Forward Voltage	I_{SD}=3A,V_{GS}=0V	0.6	0.8	1.1	V
t_{rr}	Reverse Recovery Time	I_{SD}=3.5A,		44		ns
Q_{rr}	Reverse Recovery Charge	dI_{SD}/dt=100A/us		80		nC
Dynamic Characteristics[2]						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=30V Frequency=1MHz		940		pF
C_{oss}	Output Capacitance			80		
C_{rss}	Reverse Transfer Capacitance			50		
$t_{d(on)}$	Turn-On Delay Time	V_{DD}=30V, R_L=30Ω I_D=1A, V_{GEN}=10V R_G=6Ω		13	24	ns
t_r	Turn-On Rise Time			10	19	
$t_{d(off)}$	Turn-Off Delay Time			32	60	
t_f	Turn-Off Fall Time			16	30	
Gate Charge Characteristics[2]						
Q_g	Total Gate Charge	V_{DS}=50V, V_{GS}=10V I_D=3.5A		21		nC
Q_{gs}	Gate-Source Charge			4.9		
Q_{gd}	Gate-Drain Charge			5.8		

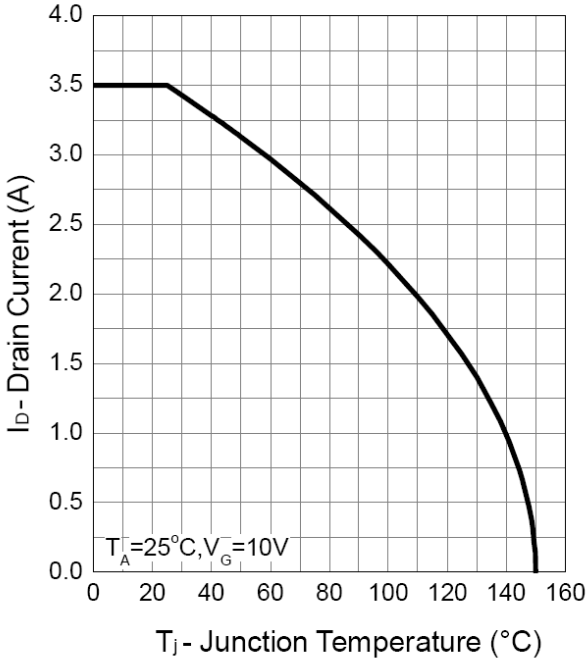
Note: 1: Pulse test ; pulse width ≦ 300ns, duty cycle ≦ 2%.
2: Guaranteed by design, not subject to production testing.

Typical Characteristics

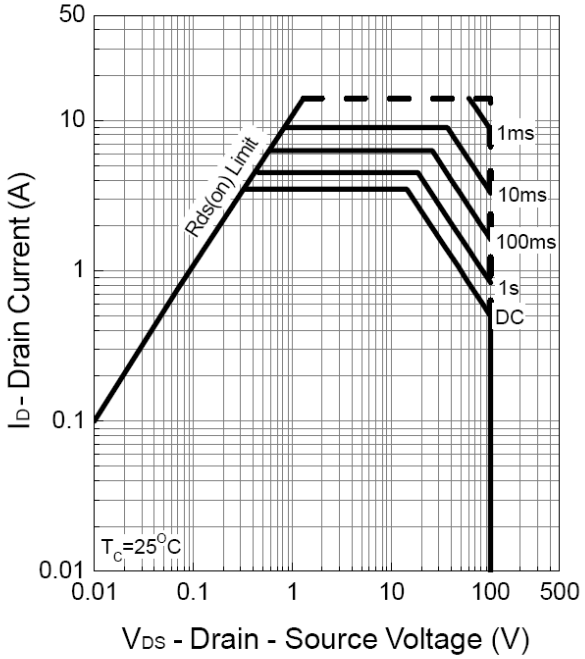
Power Dissipation



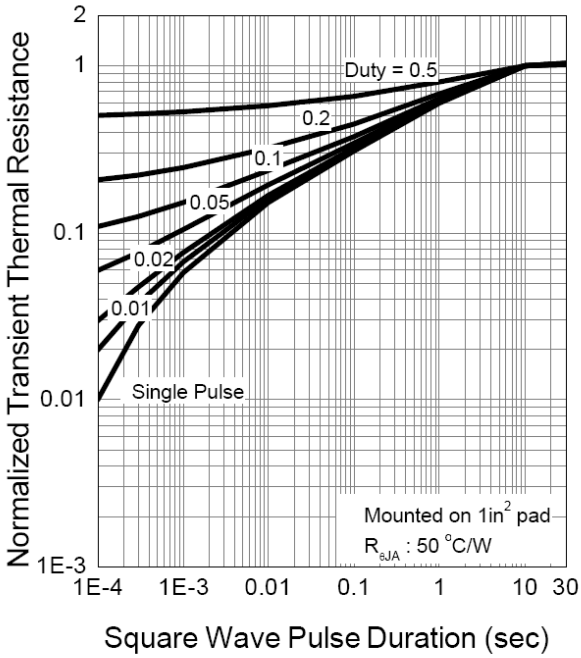
Drain Current



Safe Operation Area

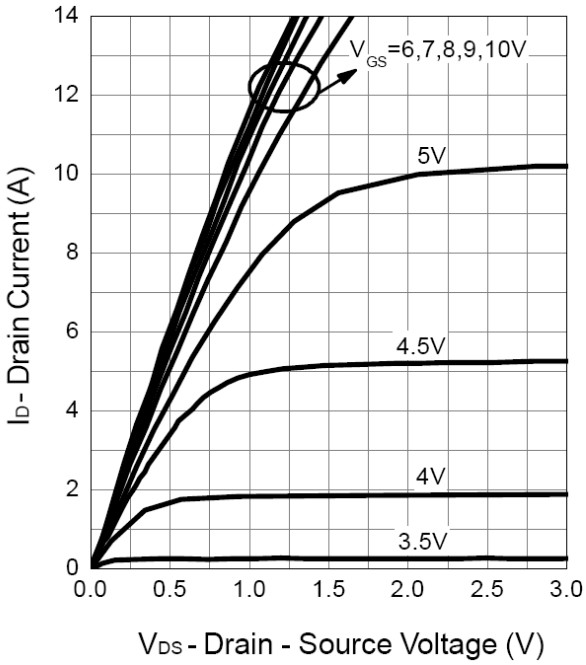


Thermal Transient Impedance

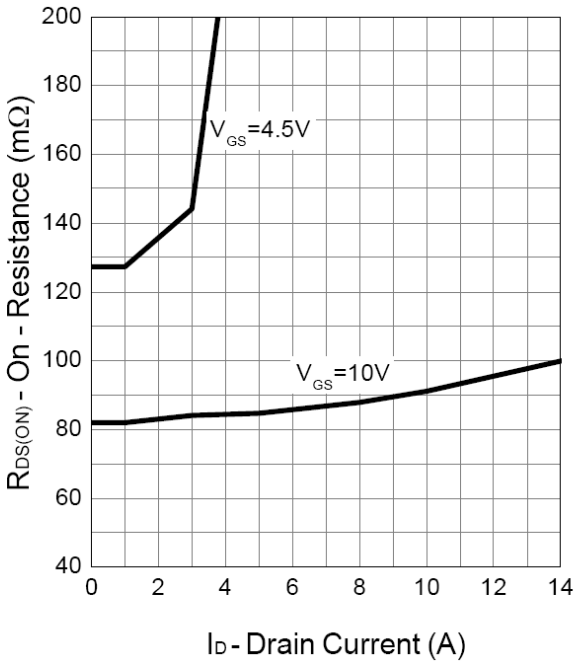


Typical Characteristics (Cont.)

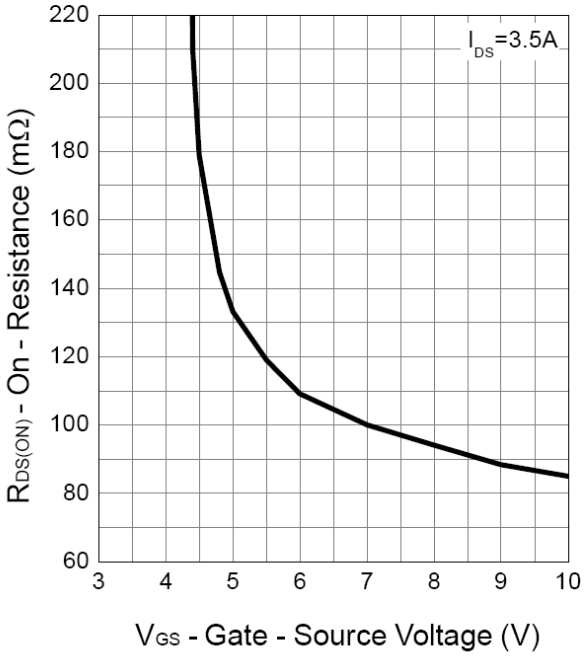
Output Characteristics



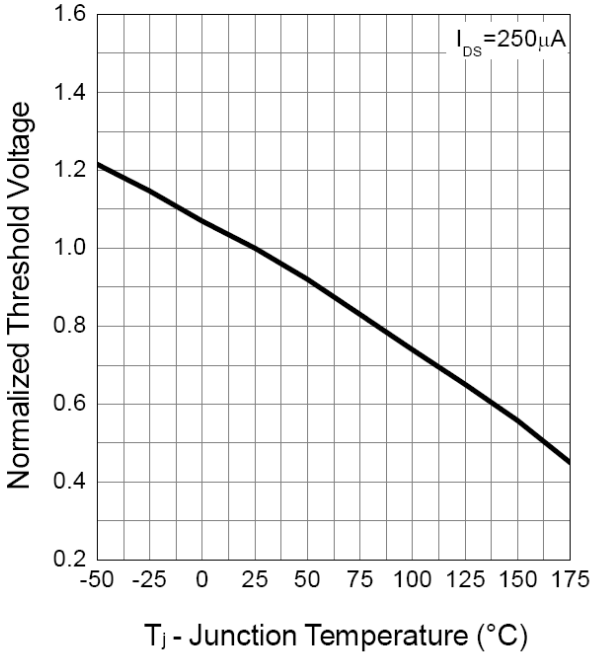
Drain-Source On Resistance



Gate-Source On Resistance

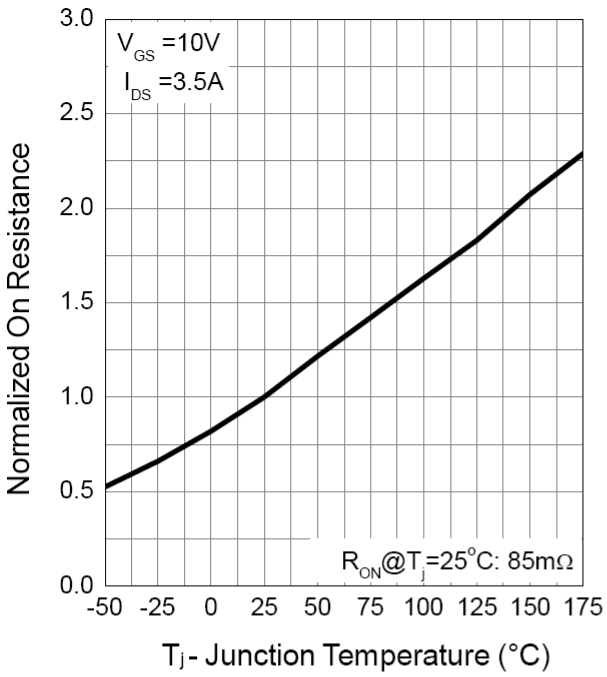


Gate Threshold Voltage

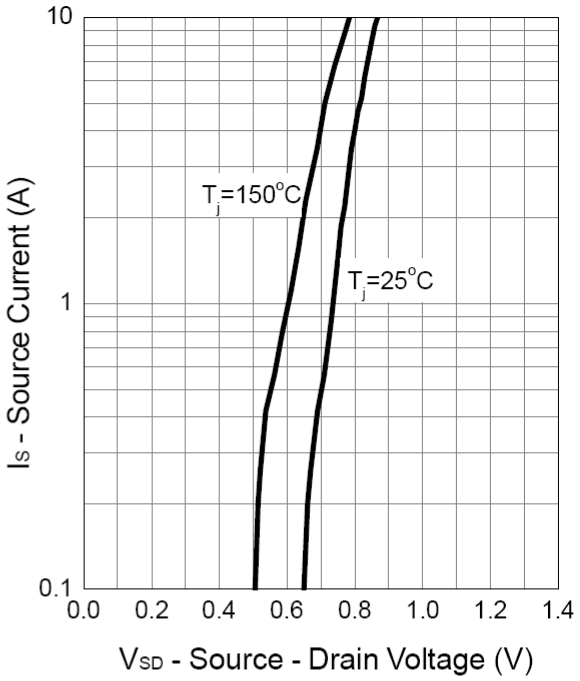


Typical Characteristics (Cont.)

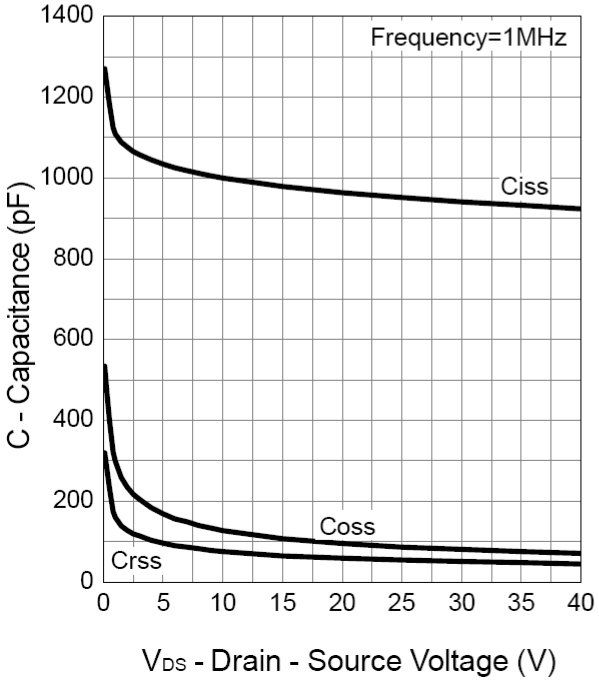
Drain-Source On Resistance



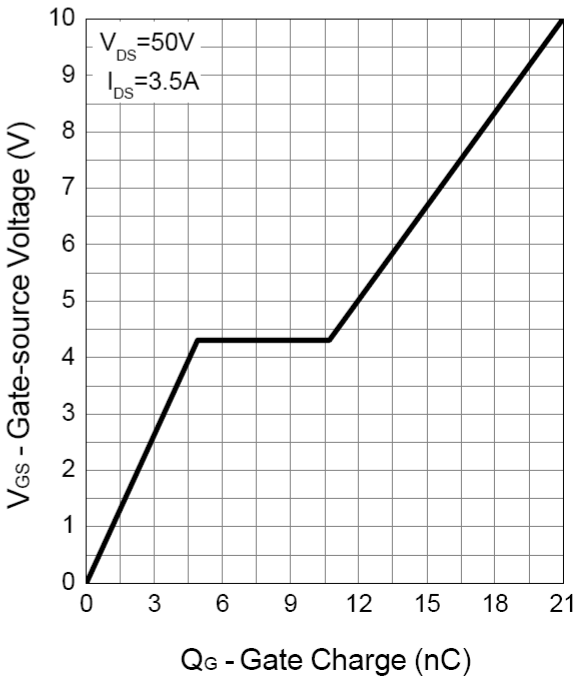
Source-Drain Diode Forward

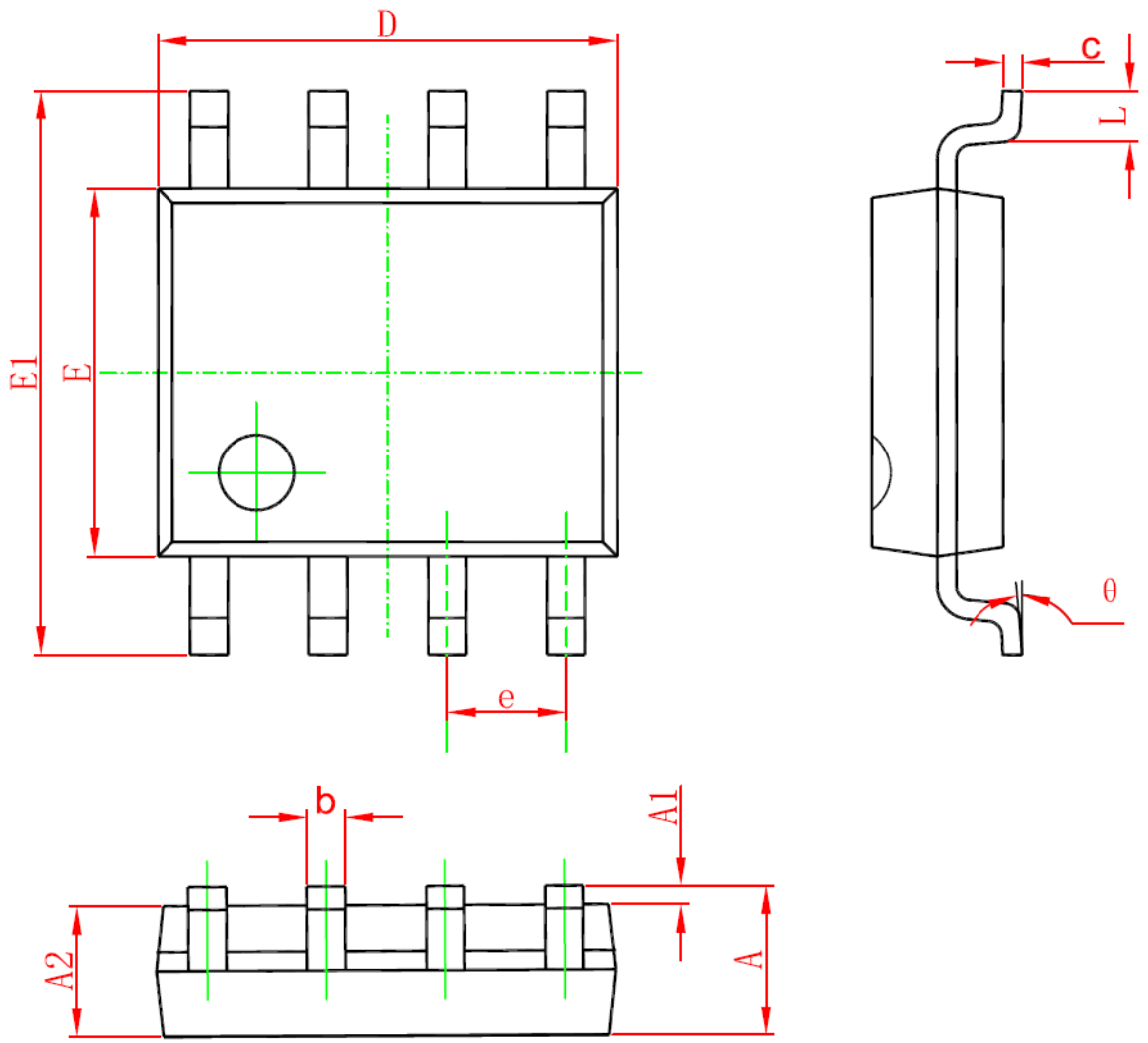


Capacitance



Gate Charge





Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.700	5.100	0.185	0.200
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270(BSC)		0.050(BSC)	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

Attention:

- Any and all H&M SEMI products described or contained herein do not have specifications that can handle applications that require extremely high levels of reliability, such as life-support systems, aircraft's control systems, or other applications whose failure can be reasonably expected to result in serious physical and/or material damage. Consult with your H&M SEMI representative nearest you before using any H&M SEMI products described or contained herein in such applications.
- H&M SEMI assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all H&M SEMI products described or contained herein.
- Specifications of any and all H&M SEMI products described or contained herein stipulate the performance, characteristics, and functions of the described products in the independent state, and are not guarantees of the performance, characteristics, and functions of the described products as mounted in the customer's products or equipment. To verify symptoms and states that cannot be evaluated in an independent device, the customer should always evaluate and test devices mounted in the customer's products or equipment.
- H&M Semiconductor CO.,LTD. strives to supply high-quality high-reliability products. However, any and all semiconductor products fail with some probability. It is possible that these probabilistic failures could give rise to accidents or events that could endanger human lives, that could give rise to smoke or fire, or that could cause damage to other property. When designing equipment, adopt safety measures so that these kinds of accidents or events cannot occur. Such measures include but are not limited to protective circuits and error prevention circuits for safe design, redundant design, and structural design.
- In the event that any or all H&M SEMI products(including technical data, services) described or contained herein are controlled under any of applicable local export control laws and regulations, such products must not be exported without obtaining the export license from the authorities concerned in accordance with the above law.
- No part of this publication may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying and recording, or any information storage or retrieval system, or otherwise, without the prior written permission of H&M Semiconductor CO.,LTD.
- Information (including circuit diagrams and circuit parameters) herein is for example only ; it is not guaranteed for volume production. H&M SEMI believes information herein is accurate and reliable, but no guarantees are made or implied regarding its use or any infringements of intellectual property rights or other rights of third parties.
- Any and all information described or contained herein are subject to change without notice due to product/technology improvement, etc. When designing equipment, refer to the "Delivery Specification" for the H&M SEMI product that you intend to use.
- This catalog provides information as of Sep.2010. Specifications and information herein are subject to change without notice.