HM4486E

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

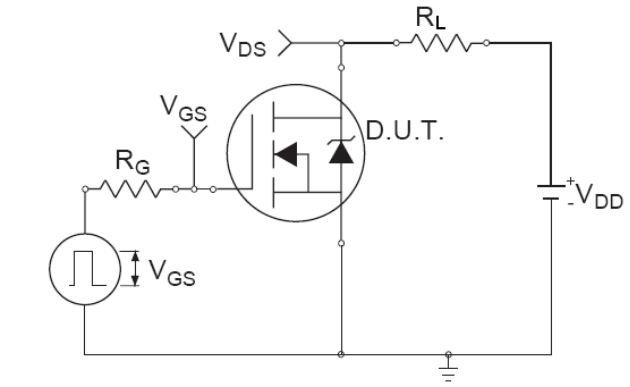
Features

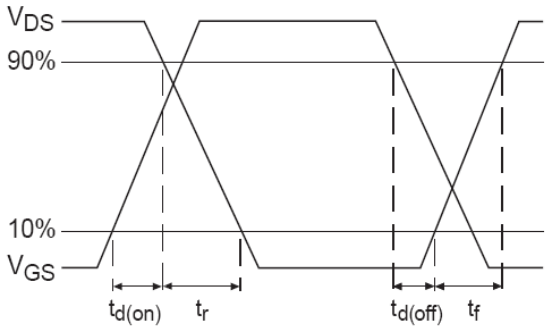
- V_{DSS}=100V／V_{GSS}=±20V／I_D=3.5A
  $R_{DS(ON)}$=105mΩ(Max.)@V_{GS}=10V
  $R_{DS(ON)}$=175mΩ(Max.)@V_{GS}=4.5V
- ESD protect
- Reliable and Rugged
- High Density Cell Design For Ultra Low On-Resistance

Applications

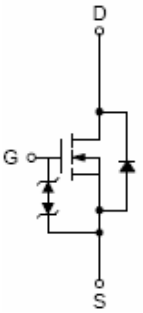
- Synchronous Rectification
- Power Management in Inverter System

Switching Time Test Circuit and Waveforms

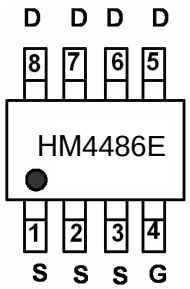


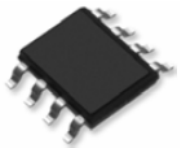


Pin Description



Marking and pin Assignment





SOP-8 top view

Package Marking and Ordering Information

Device Marking	Device	Device Package	Reel Size	Tape width	Quantity
HM4486	HM4486E	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).

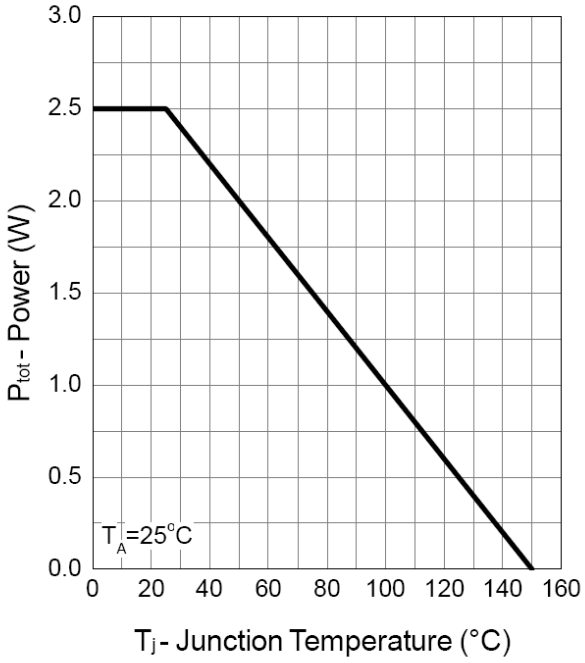
Electrical Characteristics (TA=25°C unless otherwise noted)

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		

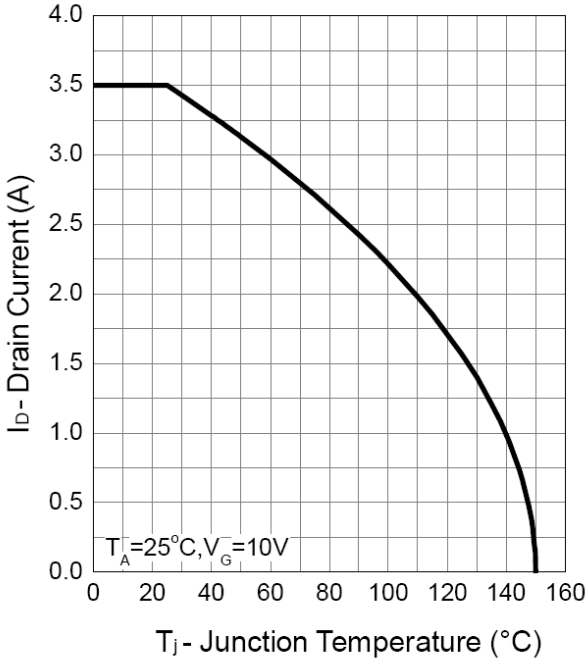
Note: 1: Pulse test ; pulse width ≦ 300ns, duty cycle ≦ 2%.
2: Guaranteed by design, not subject to production testing.

Typical Characteristics

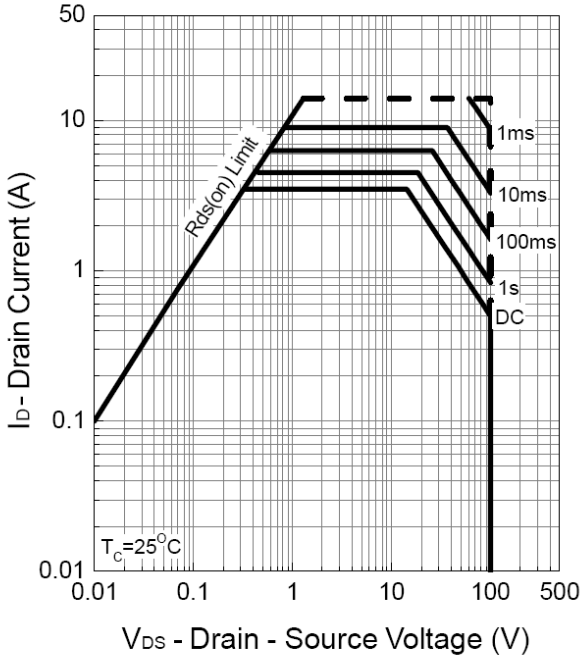
Power Dissipation



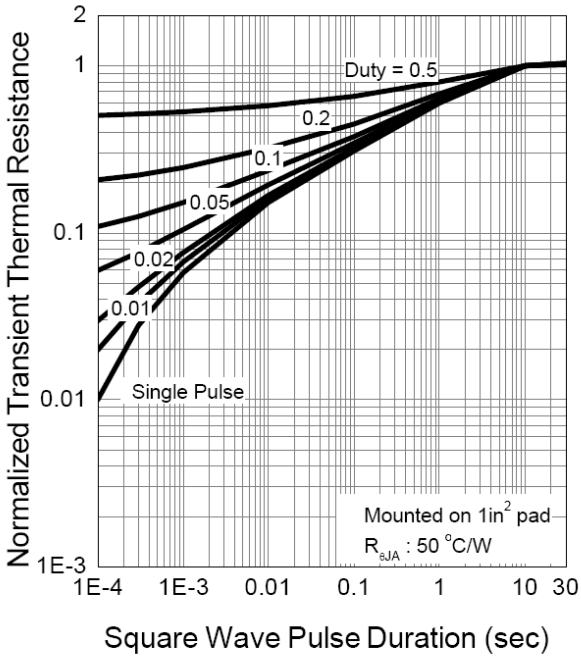
Drain Current



Safe Operation Area

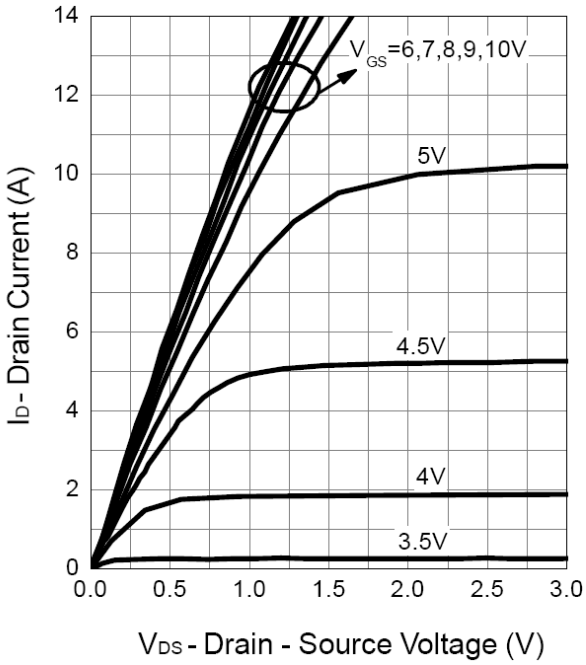


Thermal Transient Impedance

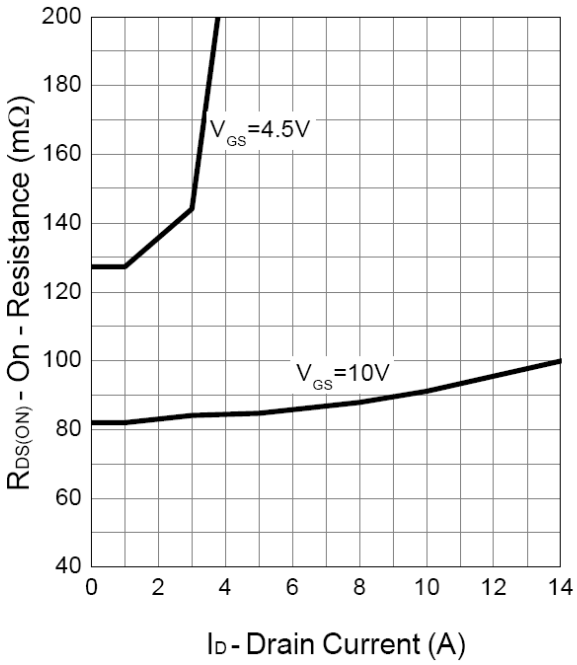


Typical Characteristics (Cont.)

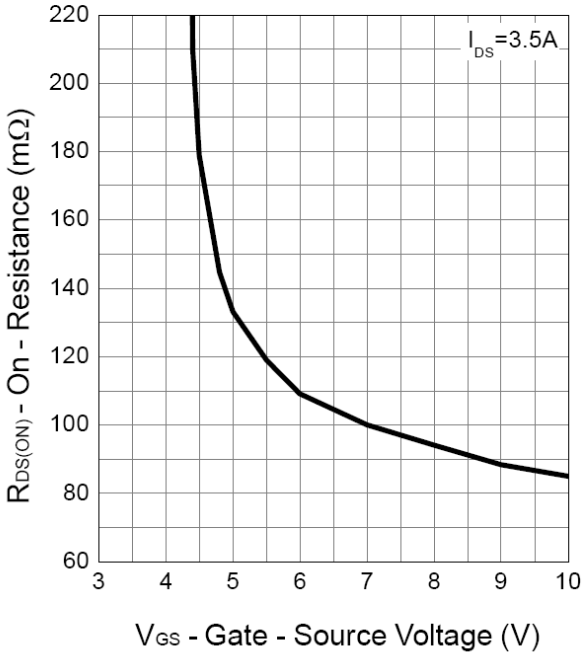
Output Characteristics



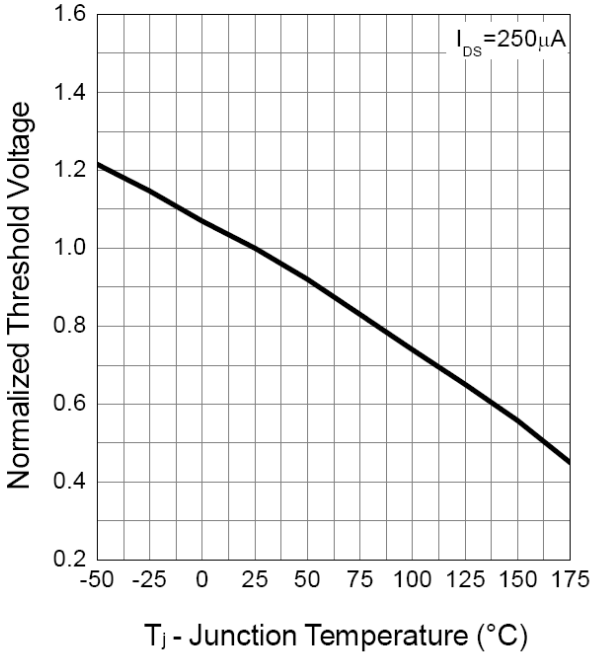
Drain-Source On Resistance



Gate-Source On Resistance

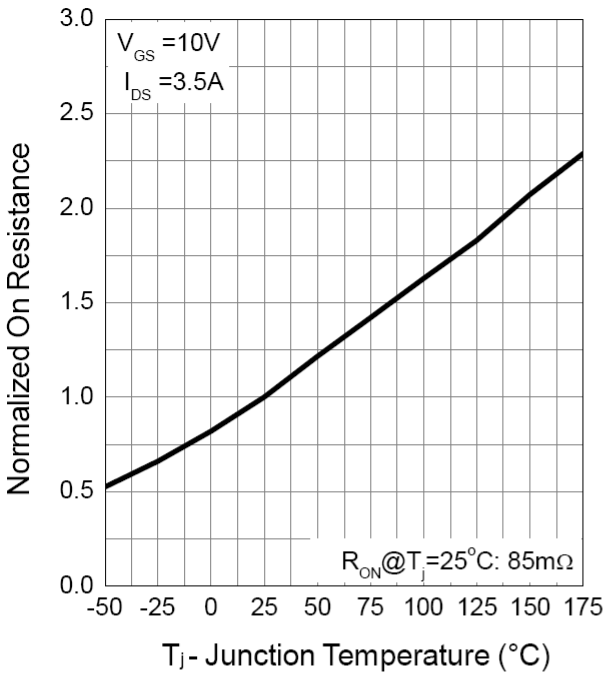


Gate Threshold Voltage

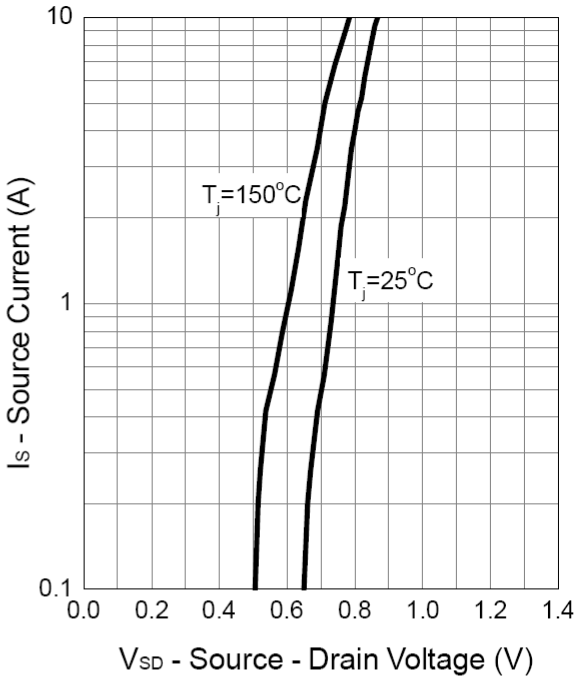


Typical Characteristics (Cont.)

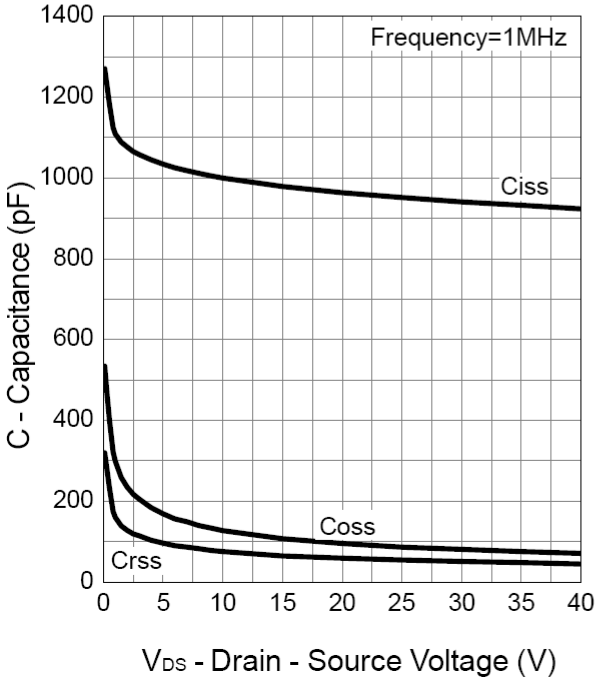
Drain-Source On Resistance



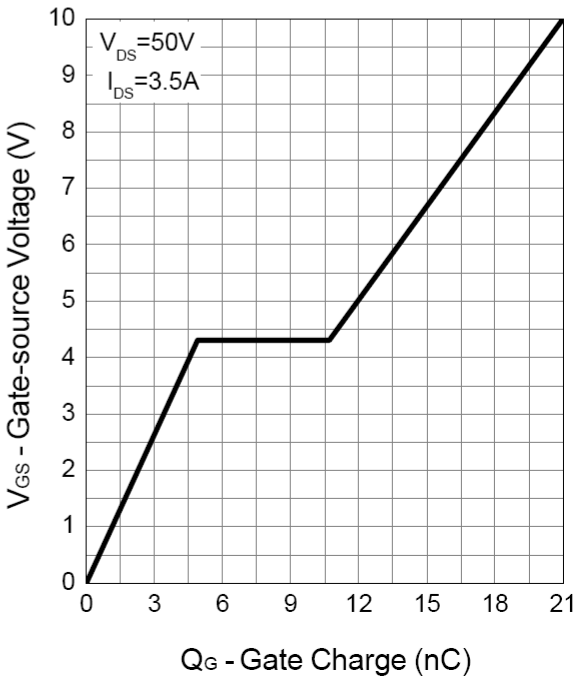
Source-Drain Diode Forward

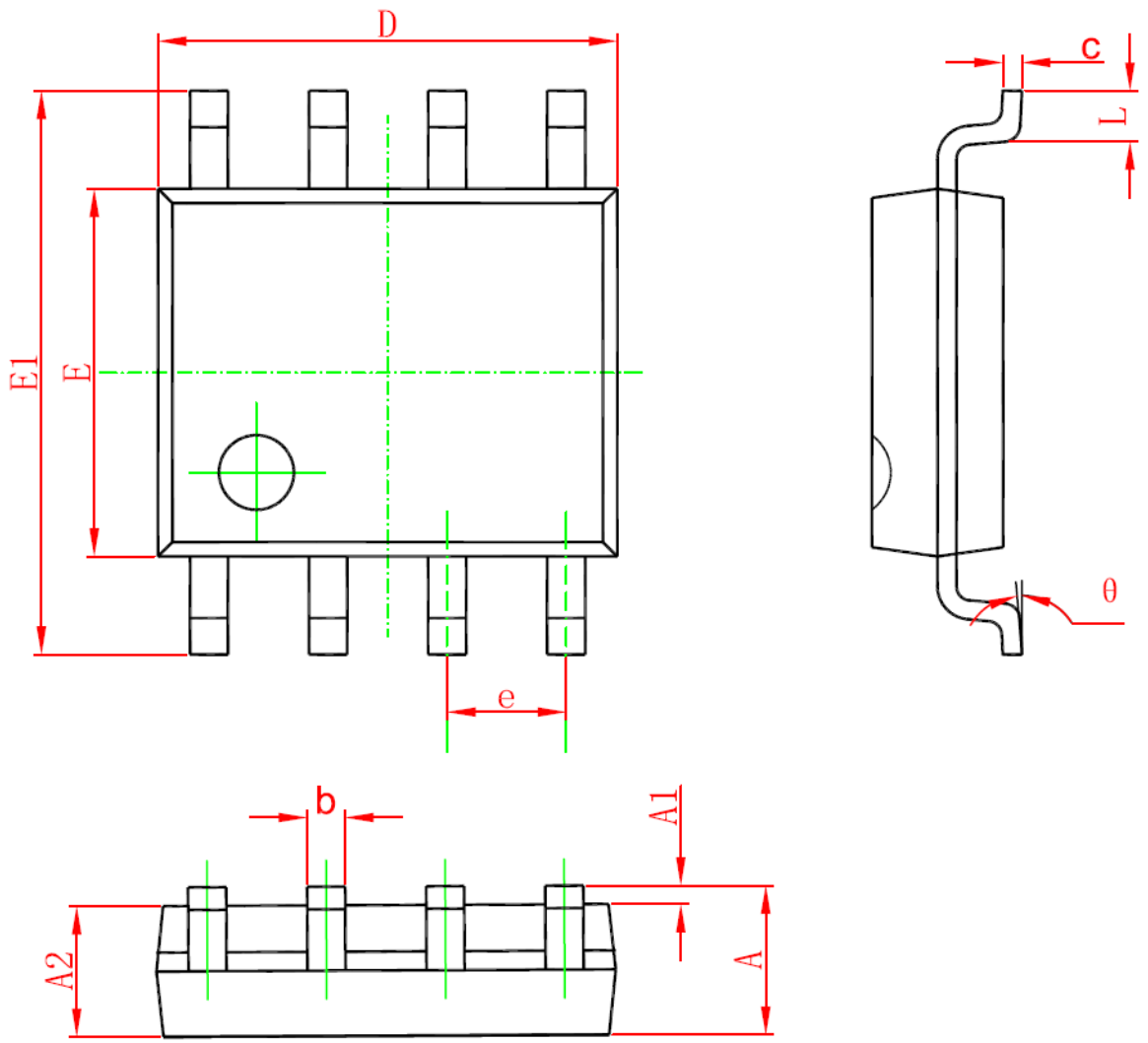


Capacitance



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°

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