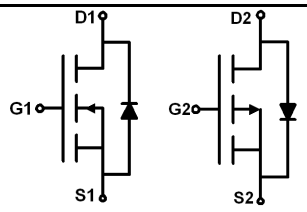
DESCRIPTION

The PE2606 uses advanced trench technology MOSFET to provide excellent $R_{DS(ON)}$ and low gate charge. The complementary MOSFET may be used in power inverters, and other applications.

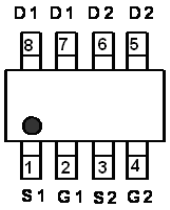
GENERAL FEATURES

- **N-Channel**
  V_{DS} = 20V,I_D = 6.8A
  $R_{DS(ON)}$ < 21mΩ @ V_{GS}=4.5V
  $R_{DS(ON)}$ < 28mΩ @ V_{GS}=2.5V
- **P-Channel**
  V_{DS} = -20V,I_D = -7A
  $R_{DS(ON)}$ < 35mΩ @ V_{GS}=-4.5V
  $R_{DS(ON)}$ < 45mΩ @ V_{GS}=-2.5V
- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

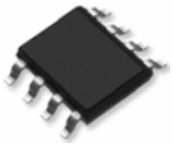


N-channel **P-channel**

Schematic diagram



Marking and pin Assignment



SOP-8 top view

ABSOLUTE MAXIMUM RATINGS(TA=25℃unless otherwise noted)

Parameter		Symbol	N-Channel	P-Channel	Unit
Drain-Source Voltage		V_{DS}	20	-20	V
Gate-Source Voltage		V_{GS}	±12	±12	V
Continuous Drain Current	T_A=25℃	I_D	6.8	-7	A
	T_A=70℃		4.5	-4.8	
Pulsed Drain Current (Note 1)		I_{DM}	20	-22	A
Maximum Power Dissipation	T_A=25℃	P_D	2.0	2.0	W
	T_A=70℃		1.44	1.44	
Operating Junction and Storage Temperature Range		T_J,T_{STG}	-55 To 150	-55 To 150	℃

THERMAL CHARACTERISTICS

Thermal Resistance,Junction-to-Ambient (Note2)	$R_{\theta JA}$	N-Ch	62.5	℃/W
		P-Ch	62.5	

N-CHANNEL Electrical Characteristics (T_A=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=250μA	20	22	-	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=20V,V_{GS}=0V	-	-	1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	0.5	0.65	1.2	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=4.5V, I_D=6.0A	-	17	21	mΩ
		V_{GS}=2.5V, I_D=5.0 A	-	21	28	mΩ
Forward Transconductance	g_{FS}	V_{DS}=10V,I_D=4A	-	10	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=8V,V_{GS}=0V, F=1.0MHz	-	500	-	PF
Output Capacitance	C_{oss}		-	300	-	PF
Reverse Transfer Capacitance	C_{rss}		-	140	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=10V,I_D=1A V_{GS}=4.5V,R_{GEN}=6Ω	-	20	40	nS
Turn-on Rise Time	t_r		-	18	40	nS
Turn-Off Delay Time	$t_{d(off)}$		-	60	108	nS
Turn-Off Fall Time	t_f		-	28	56	nS
Total Gate Charge	Q_g	V_{DS}=10V,I_D=3A,V_{GS}=4.5V	-	10	15	nC
Gate-Source Charge	Q_{gs}		-	2.3	-	nC
Gate-Drain Charge	Q_{gd}		-	2.9	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=1A	-	-	1.2	V
Diode Forward Current (Note 2)	I_S		-	-	4.5	A

P-CHANNEL Electrical Characteristics (T_A=25℃unless otherwise noted)

Parameter	Symbol	Condition	Min	Typ	Max	Unit
Off Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}=0V I_D=-250μA	-20	-	-	V

Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=-20V,V_{GS}=0V	-	-	-1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}=±12V,V_{DS}=0V	-	-	±100	nA
On Characteristics (Note 3)						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=-250μA	-0.6	-0.8	-1.4	V
Drain-Source On-State Resistance	$R_{DS(ON)}$	V_{GS}=-4.5V, I_D=-6.5A	-	25	35	mΩ
		V_{GS}=-2.5V, I_D=-5A	-	35	45	mΩ
Forward Transconductance	g_{FS}	V_{DS}=-5V,I_D=3A	-	10	-	S
Dynamic Characteristics (Note4)						
Input Capacitance	C_{lss}	V_{DS}=-10V,V_{GS}=0V, F=1.0MHz	-	2100	-	PF
Output Capacitance	C_{oss}		-	450	-	PF
Reverse Transfer Capacitance	C_{rss}		-	300	-	PF
Switching Characteristics (Note 4)						
Turn-on Delay Time	$t_{d(on)}$	V_{DD}=-10V, ID=-1A, V_{GS}=-4.5V,R_{GEN}=6Ω	-	25	-	nS
Turn-on Rise Time	t_r		-	30	-	nS
Turn-Off Delay Time	$t_{d(off)}$		-	70	-	nS
Turn-Off Fall Time	t_f		-	50	-	nS
Total Gate Charge	Q_g	V_{DS}=-10V,I_D=-6.5A,V_{GS}=-4.5V	-	17	-	nC
Gate-Source Charge	Q_{gs}		-	4.1	-	nC
Gate-Drain Charge	Q_{gd}		-	4.3	-	nC
Drain-Source Diode Characteristics						
Diode Forward Voltage (Note 3)	V_{SD}	V_{GS}=0V,I_S=-7A	-	-	-1.2	V

N-CHANNEL Typical Electrical and Thermal Characteristics

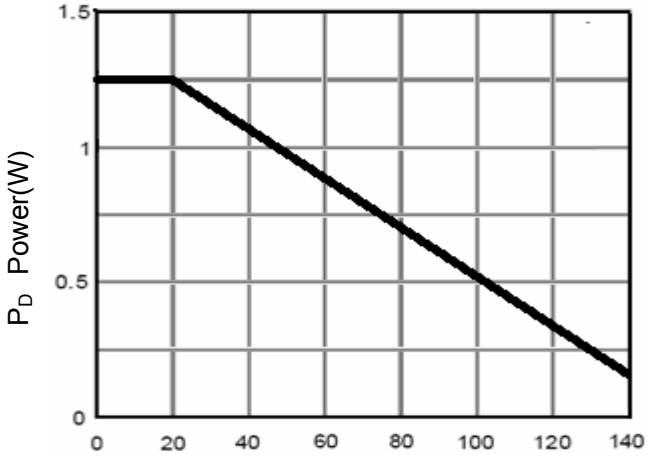


Figure 1 Power Dissipation

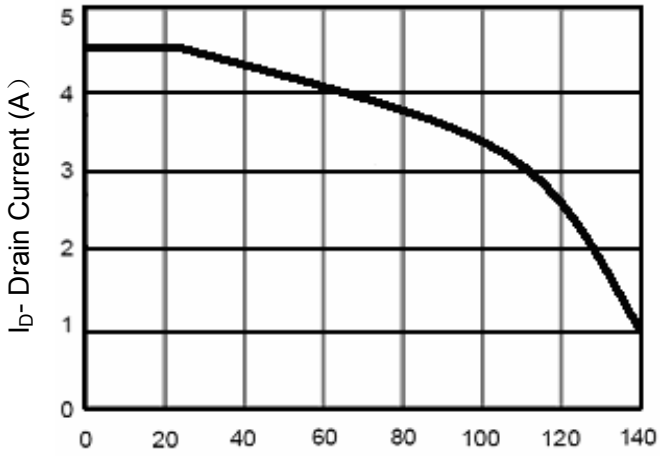


Figure 2 Drain Current

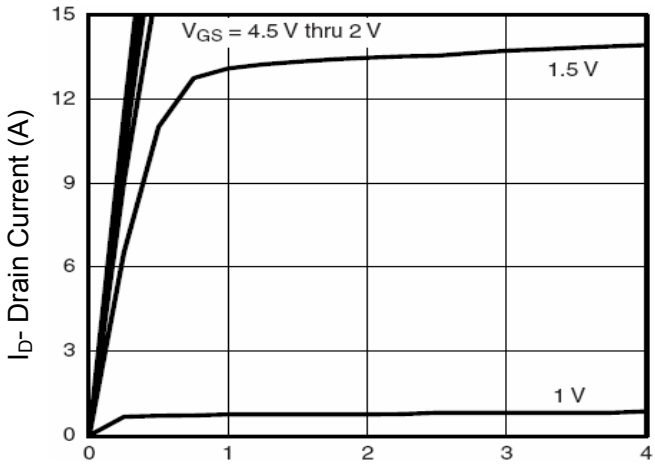


Figure 3 Output Characteristics

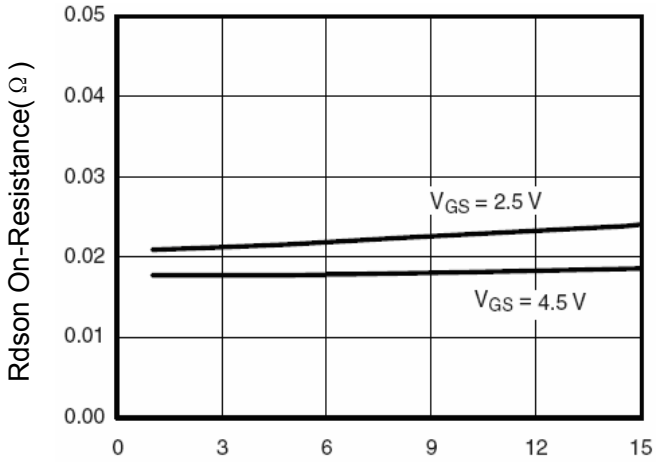


Figure 4 Drain-Source On-Resistance

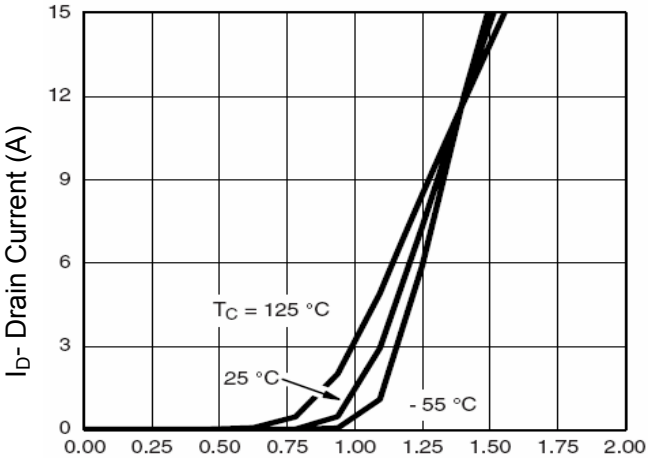


Figure 5 Transfer Characteristics

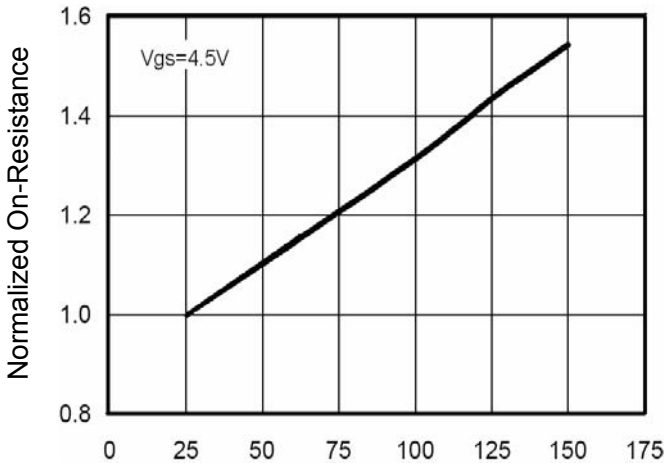


Figure 6 Drain-Source On-Resistance

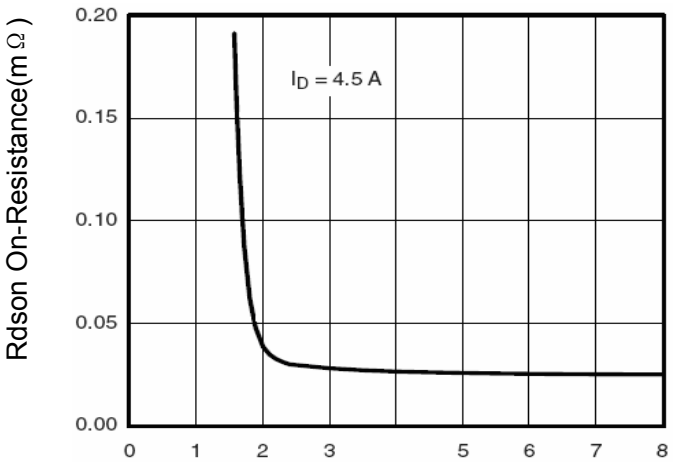


Figure 7 Rdson vs. Vgs

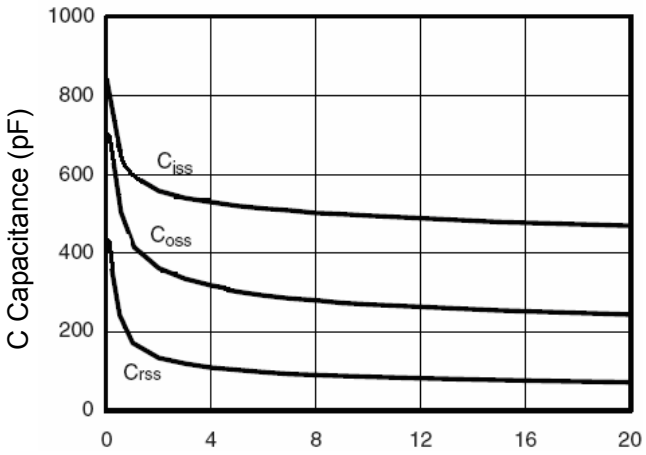


Figure 8 Capacitance vs Vds

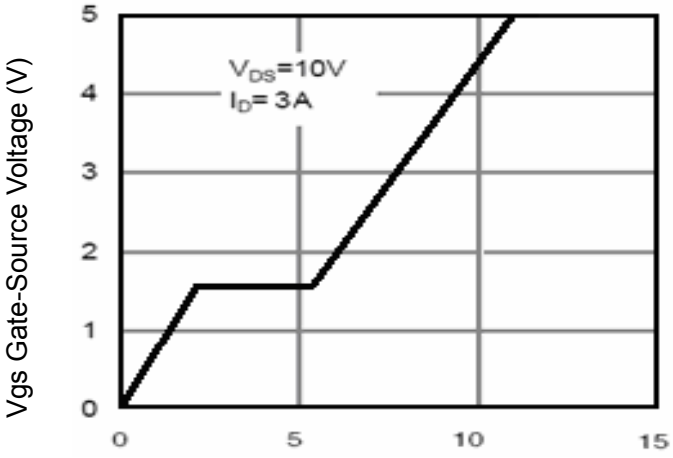


Figure 9 Gate Charge

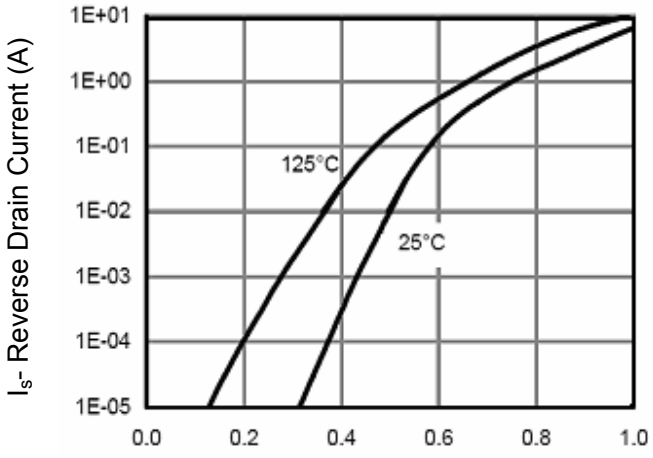


Figure 10 Source- Drain Diode Forward

P-CHANNEL Typical Electrical and Thermal Characteristics

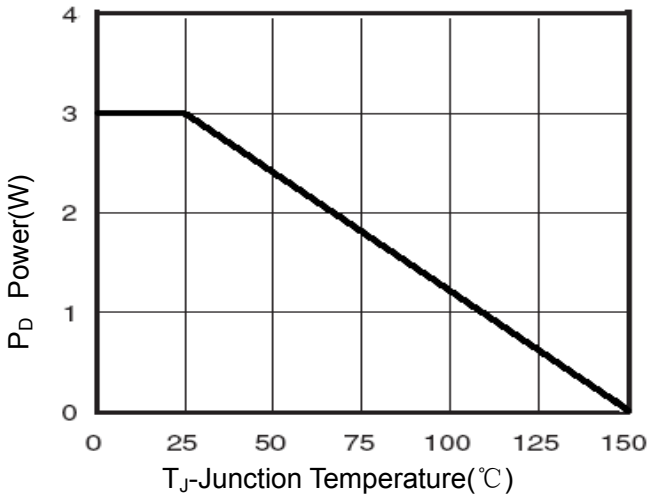


Figure 1 Power Dissipation

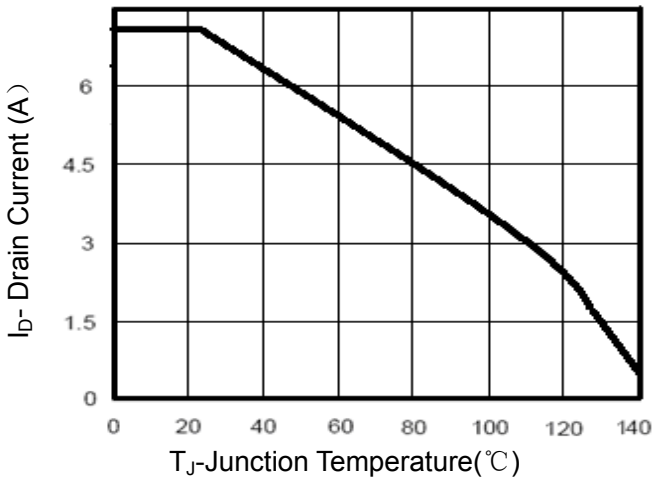


Figure 2 Drain Current

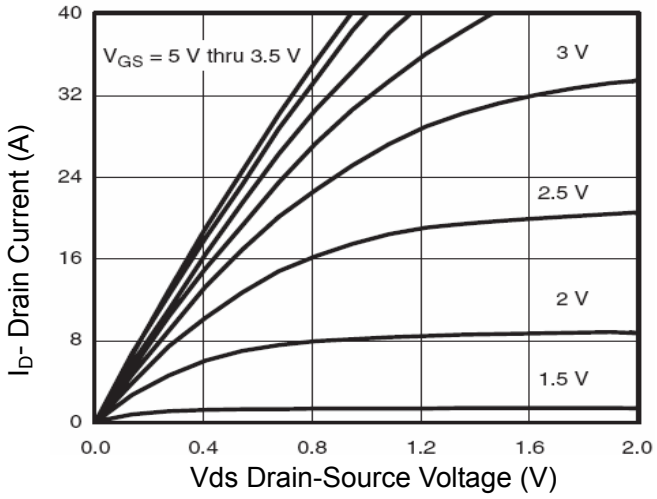


Figure 3 Output Characteristics

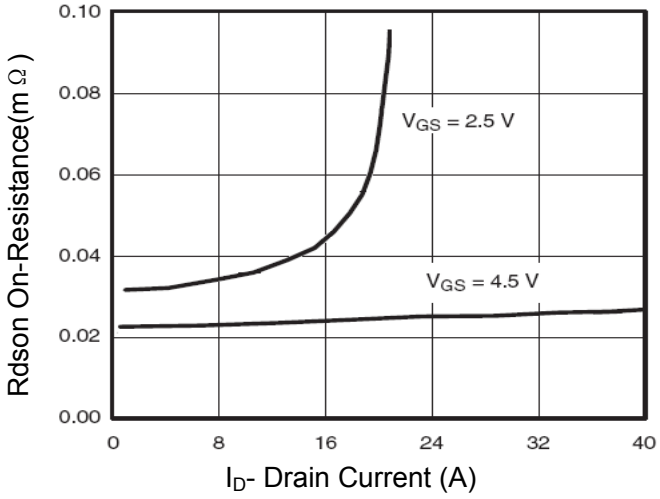


Figure 4 Drain-Source On-Resistance

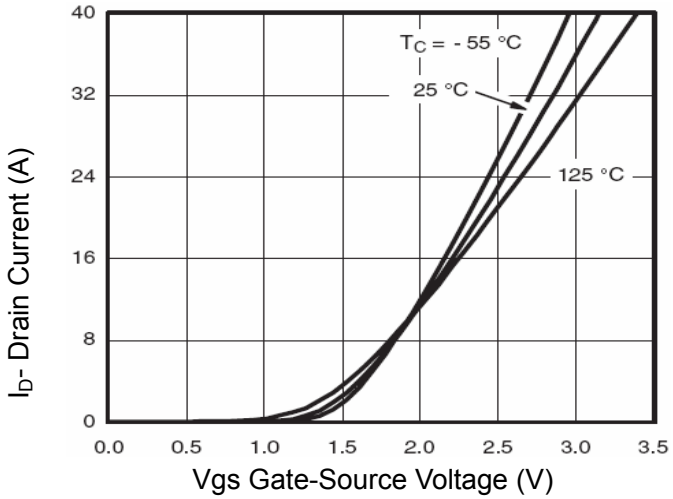


Figure 5 Transfer Characteristics

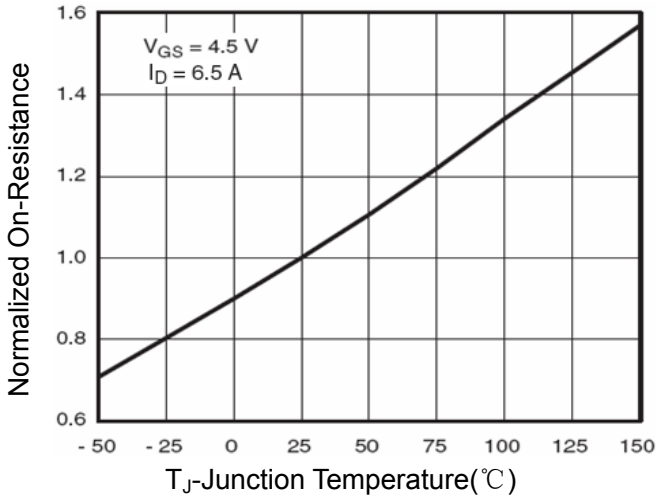


Figure 6 Drain-Source On-Resistance

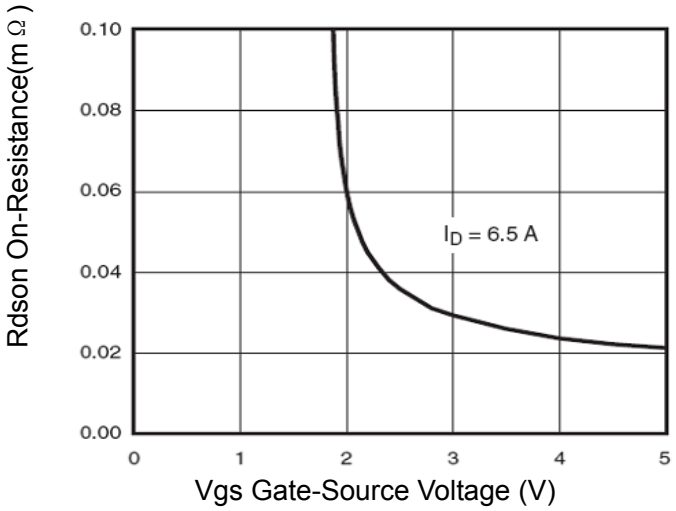


Figure 7 Rdson vs Vgs

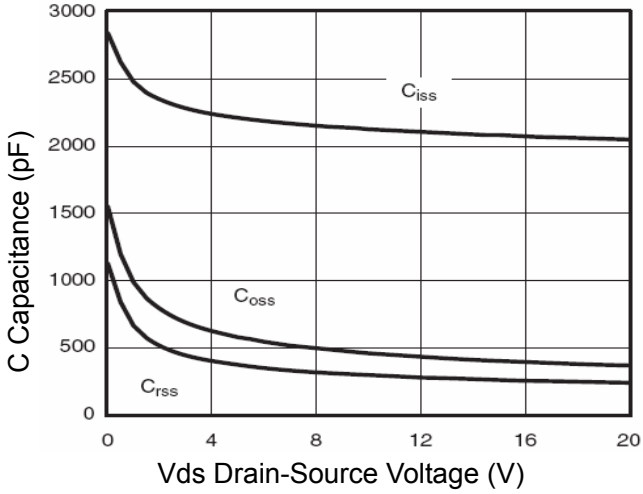


Figure 8 Capacitance vs Vds

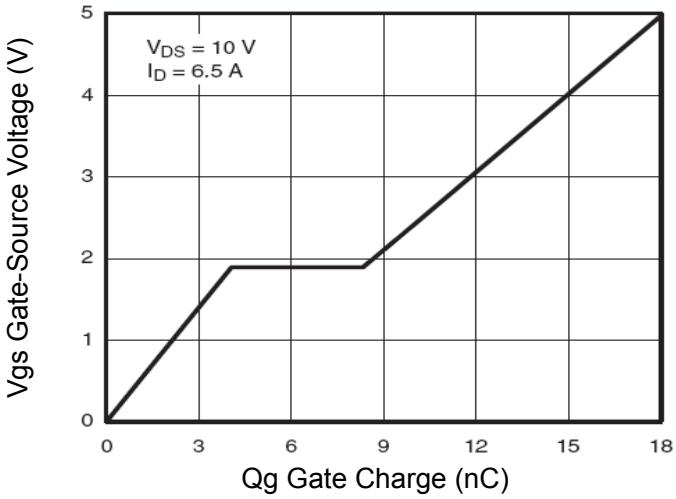


Figure 9 Gate Charge

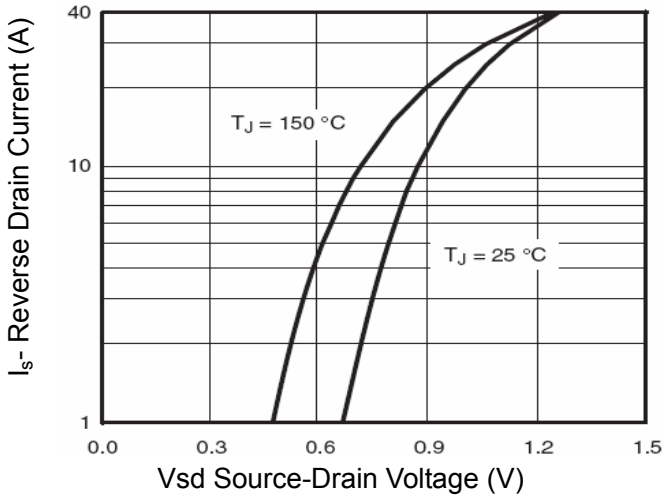
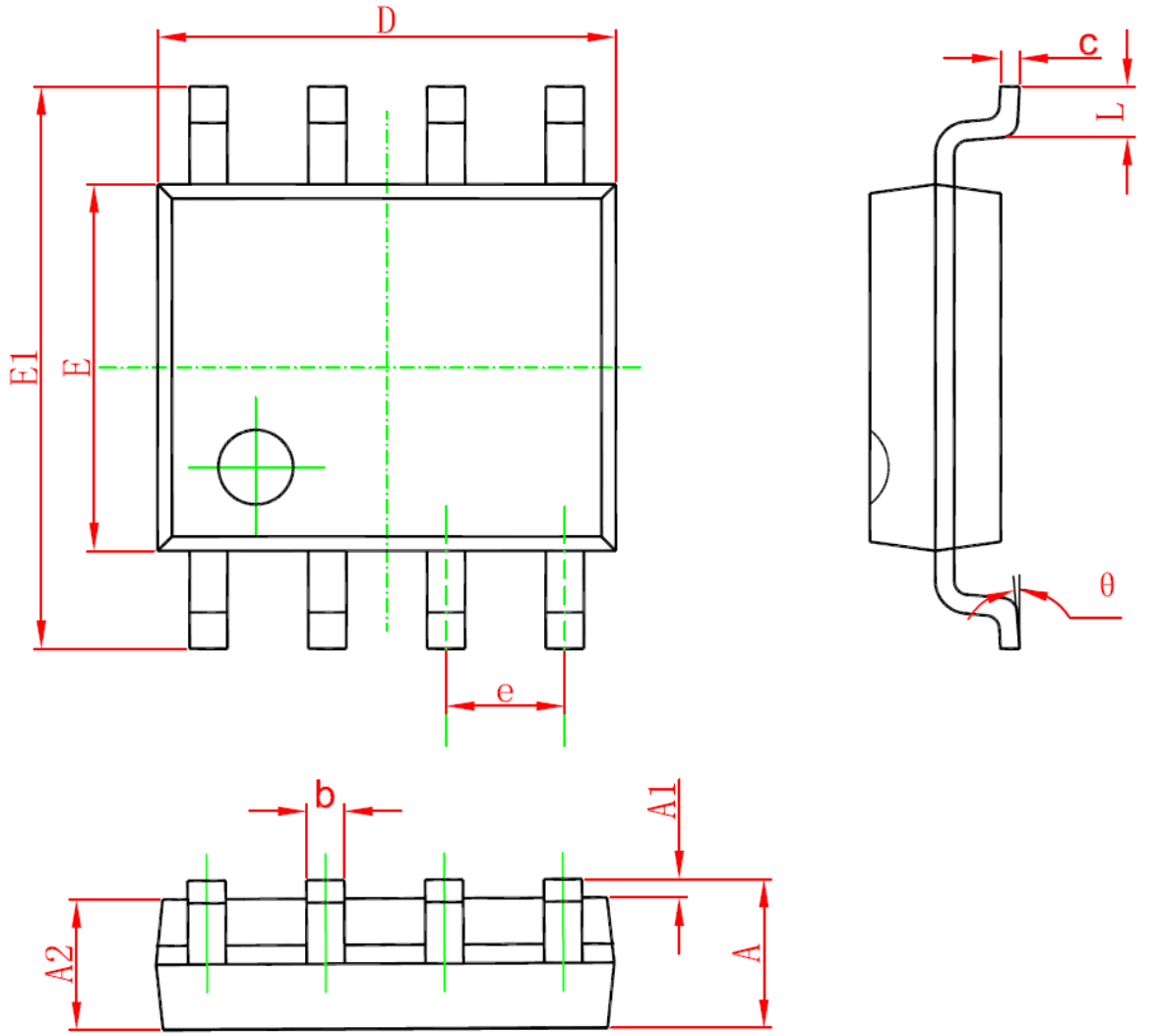


Figure 10 Source- Drain Diode Forward

SOP-8 PACKAGE IN FORMATION



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°