



Description

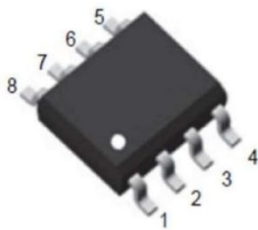
Features

- 40V, 18A
- $R_{DS(ON)}=15m\Omega$ (Typ.) @ $V_{GS}=10V$
 $R_{DS(ON)}=20m\Omega$ (Typ.) @ $V_{GS} = 4.5V$
- High Density Cell Design for Ultra Low $R_{DS(ON)}$
- Lead Free and Green Devices Available (RoHS Compliant)
- Excellent Package for Good Heat Dissipation

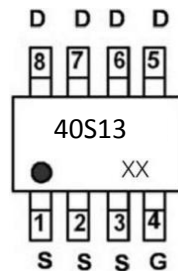
Application

- DC/DC Converters
- Wireless charger
- Synchronous rectification

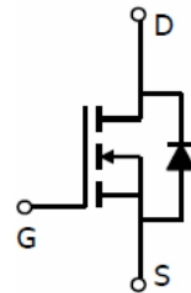
Package



SOP-8



Marking and pin Assignment



Schematic diagram

Absolute Maximum Ratings (T_c=25°C unless otherwise specified)

Symbol	Parameter	Max.	Units
V _{DSS}	Drain-Source Voltage	40	V
V _{GSS}	Gate-Source Voltage	±20	V
I _D	Continuous Drain Current	T _c = 25°C	18
		T _c = 100°C	10
I _{DM}	Pulsed Drain Current ^{note1}	68	A
E _{AS}	Single Pulsed Avalanche Energy ^{note2}	14	mJ
P _D	Power Dissipation	T _c = 25°C	19
R _{θJC}	Thermal Resistance, Junction to Case	4.62	°C/W
T _J , T _{STG}	Operating and Storage Temperature Range	-55 to +175	°C

**Electrical Characteristics** ($T_C=25^\circ\text{C}$ unless otherwise specified)

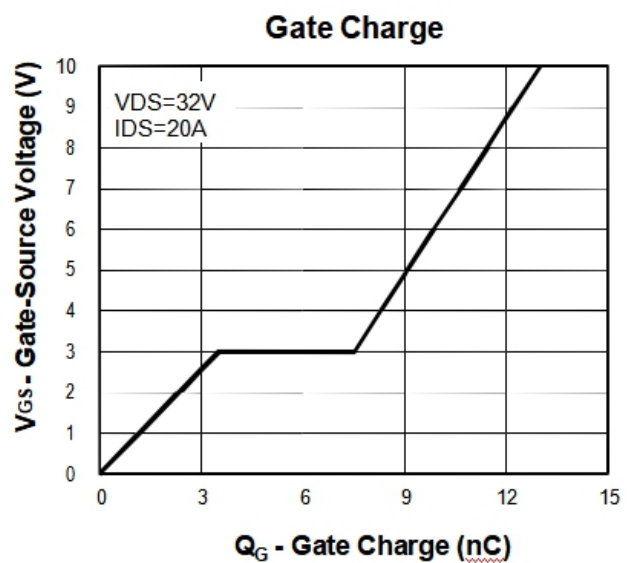
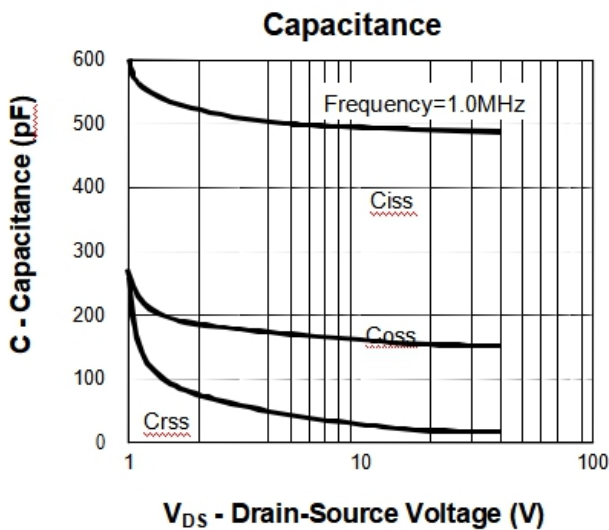
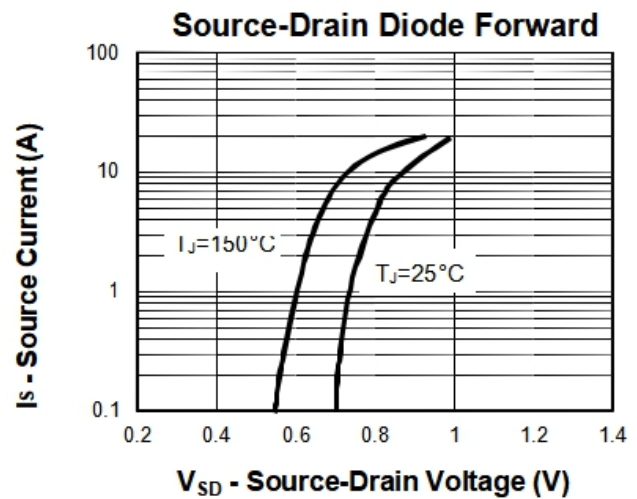
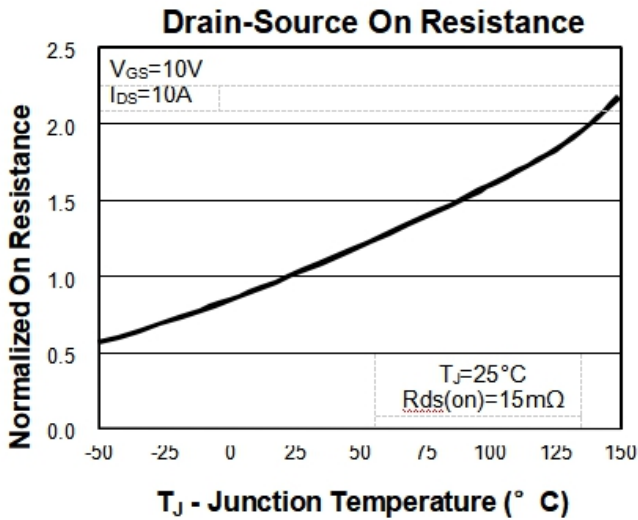
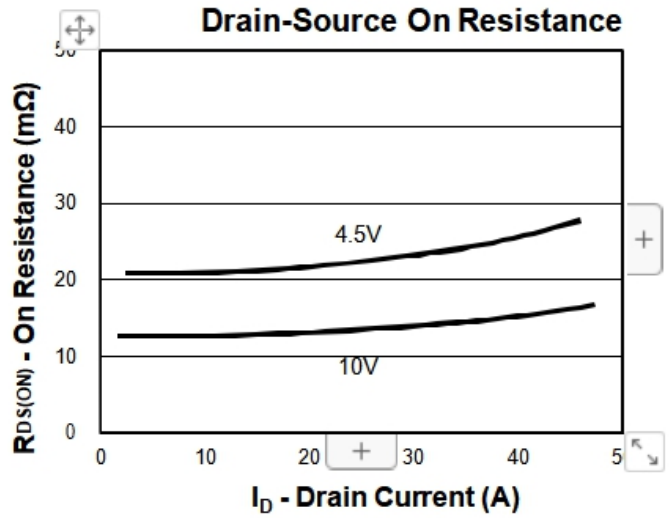
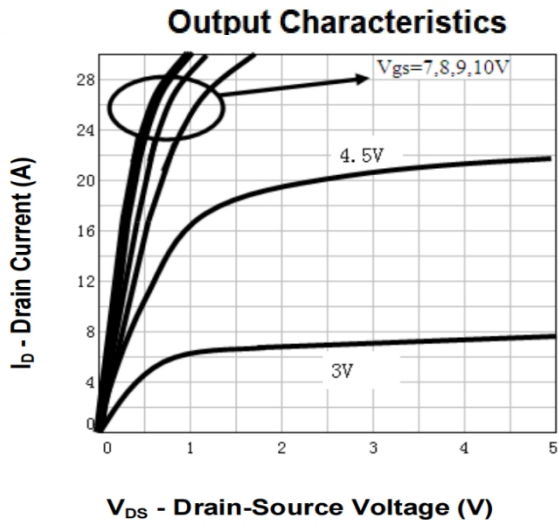
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=250\mu A$	40	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=40V, V_{GS}=0V,$	-	-	1.0	μA
I_{GSS}	Gate to Body Leakage Current	$V_{DS}=0V, V_{GS}=\pm 20V$	-	-	± 100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=250\mu A$	1.0	1.5	2.5	V
$R_{DS(on)}$	Static Drain-Source on-Resistance <small>note3</small>	$V_{GS}=10V, I_D=10A$	-	15	20	m Ω
		$V_{GS}=4.5V, I_D=8A$	-	20	25	
Dynamic Characteristics						
C_{iss}	Input Capacitance	$V_{DS}=20V, V_{GS}=0V,$ $f=1.0MHz$	-	588	-	pF
C_{oss}	Output Capacitance		-	112	-	pF
C_{rss}	Reverse Transfer Capacitance		-	64	-	pF
Q_g	Total Gate Charge	$V_{DS}=20V, I_D=20A,$ $V_{GS}=10V$	-	13.6	-	nC
Q_{gs}	Gate-Source Charge		-	3.5	-	nC
Q_{gd}	Gate-Drain("Miller") Charge		-	6.4	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=20V, I_D=20A,$ $R_L=1\Omega, R_{GEN}=3\Omega,$ $V_{GS}=10V$	-	5.8	-	ns
t_r	Turn-on Rise Time		-	11.7	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	15	-	ns
t_f	Turn-off Fall Time		-	5.2	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	18	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	68	A
V_{SD}	Drain to Source Diode Forward Voltage	$V_{GS}=0V, I_S=20A$	-	-	1.2	V
t_{rr}	Body Diode Reverse Recovery Time	$T_J=25^\circ\text{C},$ $I_F=20A, di/dt=100A/\mu s$	-	9.5	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge		-	15.2	-	nC

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. EAS condition: $T_J=25^\circ\text{C}, V_{DD}=30V, V_G=10V, R_G=25\Omega, L=0.5mH$ 3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 0.5\%$

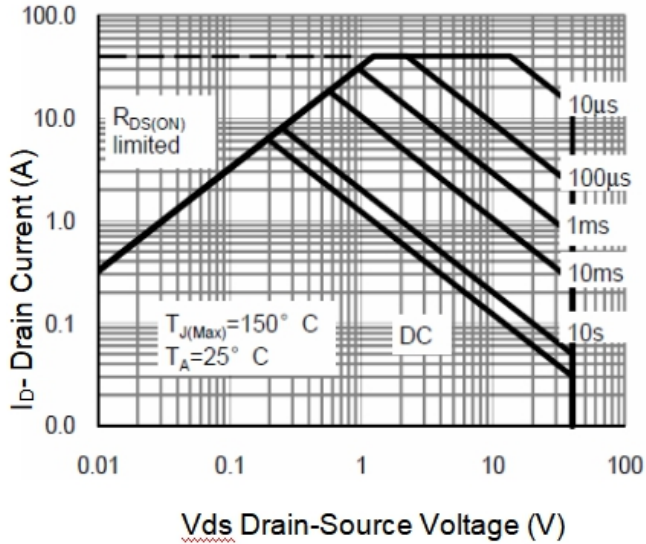


Typical Characteristics

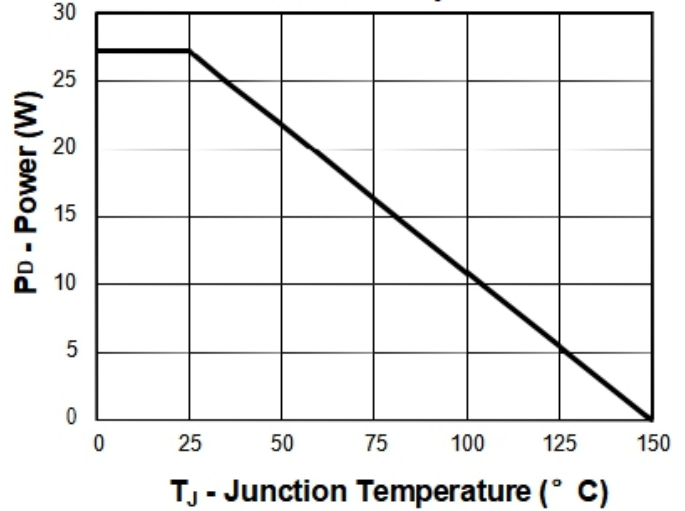




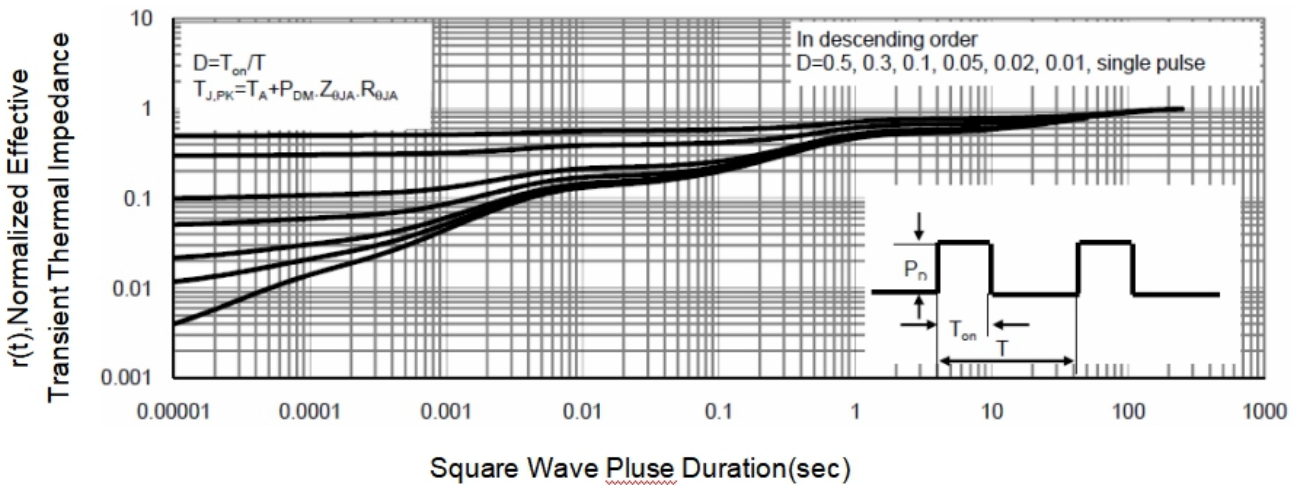
Safe Operation Area



Power Dissipation



Thermal Transient Impedance



Test Circuit

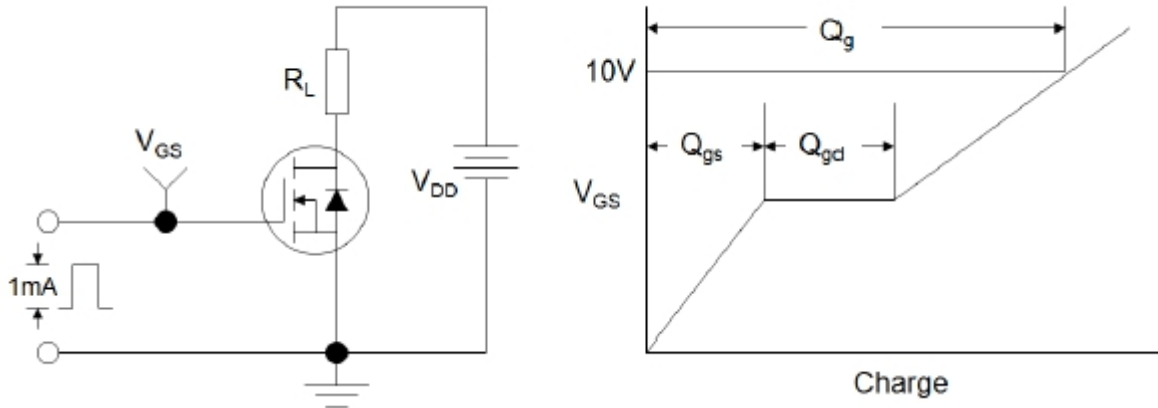


Figure1:Gate Charge Test Circuit & Waveform

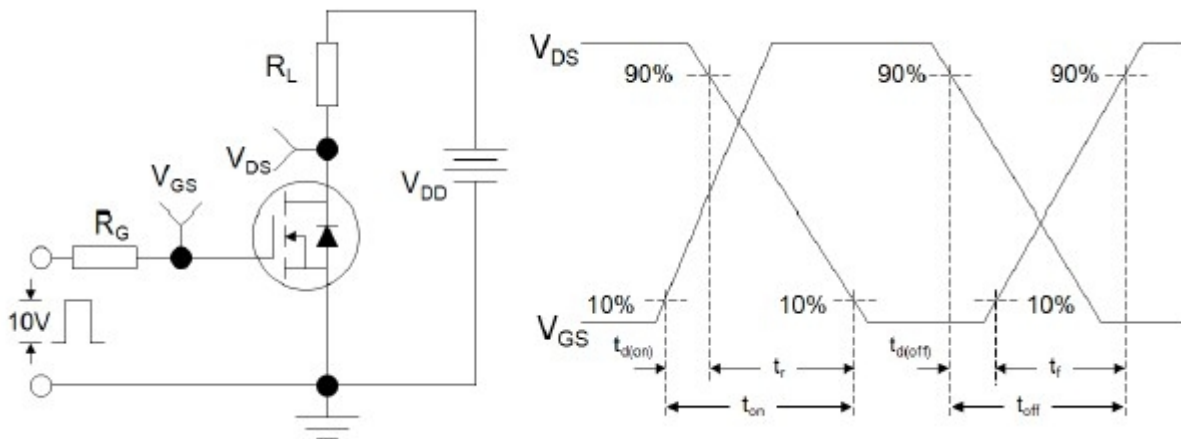


Figure 2: Resistive Switching Test Circuit & Waveforms

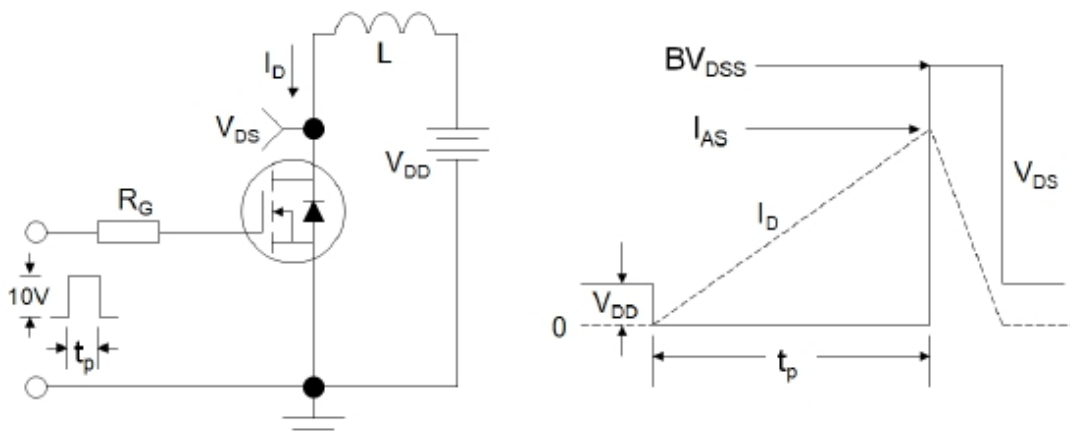
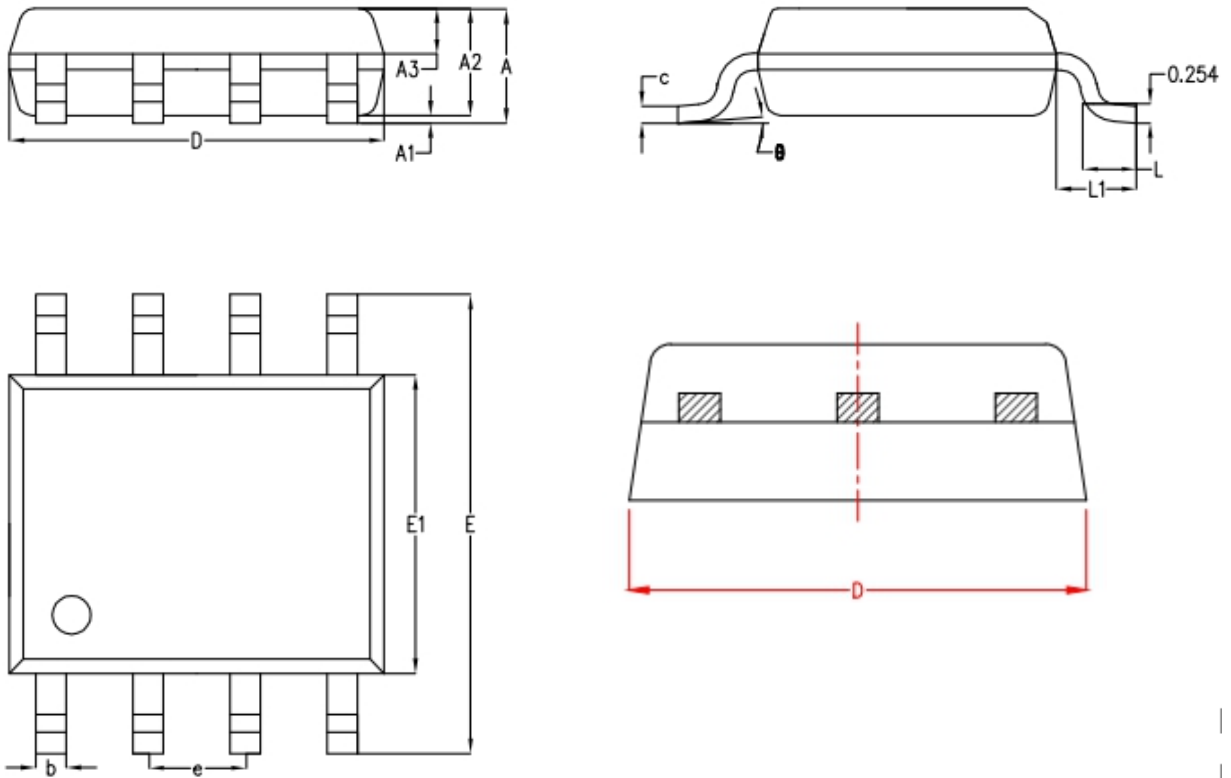


Figure 3:Unclamped Inductive Switching Test Circuit & Waveforms



SOP-8 Package Information



符号	毫米		
	最小值	典型值	最大值
A	-	1.50	1.55
A1	-	0.10	0.15
A2	1.35	1.40	1.45
A3	0.55	0.60	0.65
b	0.35	0.40	0.45
c	0.17	0.22	0.25
D	4.85	4.90	4.95
E	5.90	6.00	6.10
E1	3.80	3.90	4.00
e	1.27BSC		
L	0.60	0.65	0.70
L1	1.05BSC		
θ	0°	4°	6°