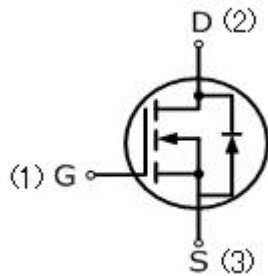
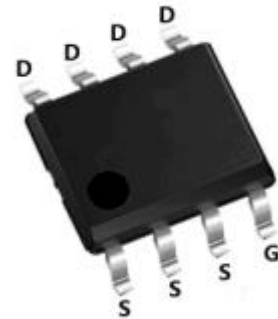


MOSFET

13 Amps,60 Volts N-CHANNEL MOSFET

FEATURE

- 13A,60V, $R_{DS(ON)MAX}=10m\Omega$ @ $V_{GS}=10V/6.5A$
 $R_{DS(ON)MAX}=13m\Omega$ @ $V_{GS}=4.5V/6.5A$
- Low gate charge
- Low C_{iss}
- Fast switching
- 100% avalanche tested
- Improved dv/dt capability



SOP8L PIN CONFIGURATION

Absolute Maximum Ratings($T_C=25^{\circ}C$, unless otherwise noted)			
Parameter	Symbol	13N06P	UNIT
Drain-Source Voltage	V_{DSS}	60	V
Gate-Source Voltage	V_{GSS}	± 20	
Continuous Drain Current	I_D	13	A
Pulsed Drain Current(Note1)	I_{DM}	48	
Single Pulse Avalanche Energy (Note 2)	E_{AS}	31	mJ
Operating Junction and Storage Temperature Range	T_J, T_{STG}	-55to+150	$^{\circ}C$
Maximum lead temperature for soldering purposes, 1/8" from case for 5 seconds	T_L	260	$^{\circ}C$

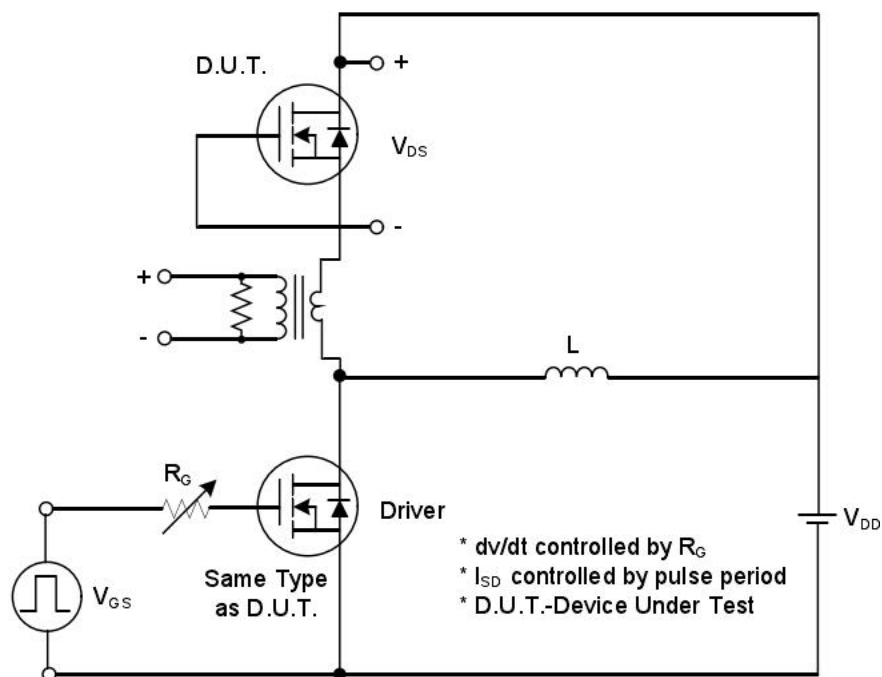
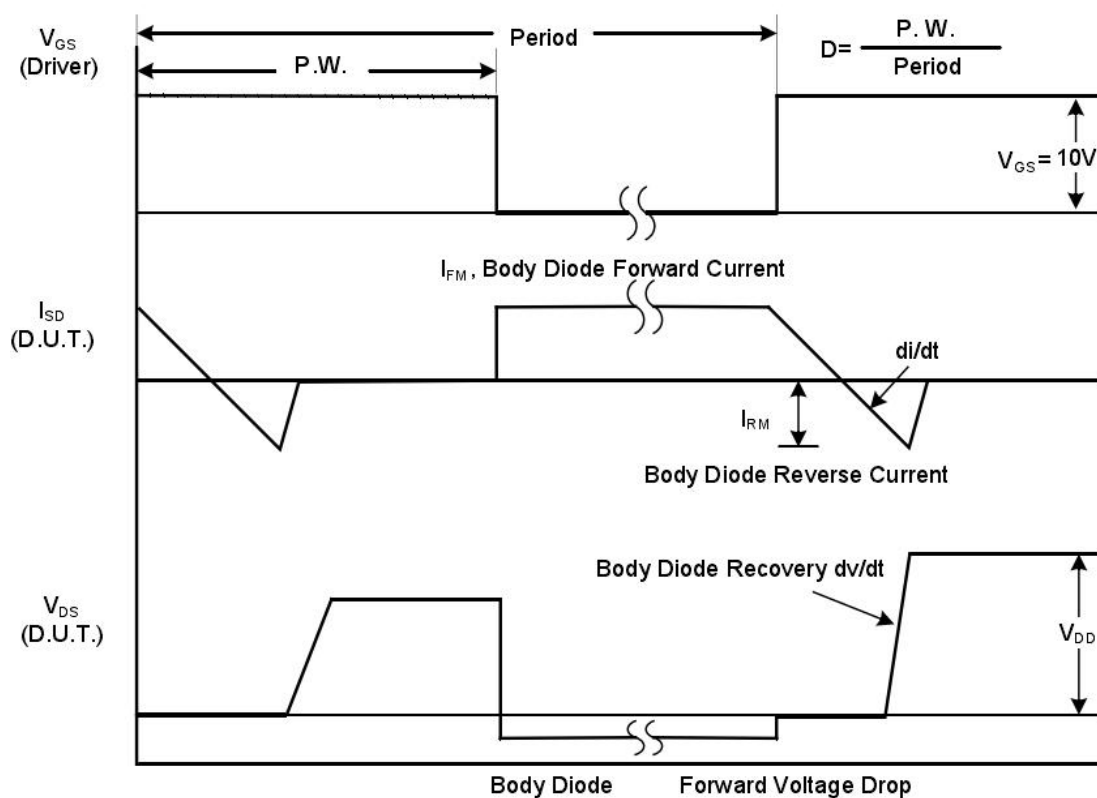
Thermal Characteristics			
Parameter	Symbol	MAX	Units
Thermal resistance , Channel to Case	$R_{th(ch-c)}$	21.8	$^{\circ}C/W$
Maximum Power Dissipation	P_D	2.8	W

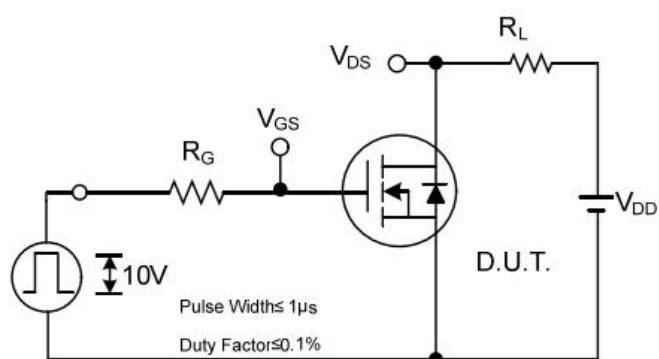
Electrical Characteristics (T _c =25°C,unless otherwise noted)						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
Drain-Source Breakdown Voltage	BV _{DSS}	V _{GS} =0V,I _D =250uA	60	—	—	V
Breakdown Temperature Coefficient	ΔBV _{DSS} /ΔT _J	Reference to 25°C, I _D =250uA	—	0.021	—	V/°C
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =60V,V _{GS} =0V	—	—	1	uA
Gate-Body Leakage Current,Forward	I _{GSSF}	V _{GS} =20V,V _{DS} =0V	—	—	100	nA
Gate-Body Leakage Current,Reverse	I _{GSSR}	V _{GS} =-20V,V _{DS} =0V	—	—	-100	nA
On Characteristics						
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} =V _{GS} ,I _D =250uA	1.4	—	2.5	V
Drain-Source On-State Resistance	R _{DS(on)}	V _{GS} =10V,I _D =6.5A	—	9	10	m Ω
		V _{GS} =4.5V,I _D =6.5A	—	10.5	13	
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} =30V,V _{GS} =0V, f=1.0MHZ	950	1062	1150	pF
Output Capacitance	C _{oss}		200	308	400	pF
Reverse Transfer Capacitance	C _{rss}		10	20	30	pF
Switching Characteristics						
Turn-On Delay Time	t _{d(on)}	V _{DD} =30V,V _{GS} =10V, R _G =2.7Ω (Note3,4)	—	8.8	—	ns
Turn-On Rise Time	t _r		—	42	—	ns
Turn-Off Delay Time	t _{d(off)}		—	21.5	—	ns
Turn-Off Fall Time	t _f		—	5.4	—	ns
Total Gate Charge	Q _g	V _{DD} =30V,I _D =12A, V _{GS} =10V, (Note3,4)	—	18	—	nC
Gate-Source Charge	Q _{gs}		—	3.7	—	nC
Gate-Drain Charge	Q _{gd}		—	2.9	—	nC
Drain-Source Body Diode Charcteristics and Maximum Ratings						
Diode Forward Voltage	V _{SD}	I _S =1A,V _{GS} =0V	—	—	1.0	V
Reverse Recovery Time	t _{rr}	V _R =30V,I _F =12A,	—	78	—	ns
Reverse Recovery Charge	Q _{rr}	dI _F /dt=300A/us	—	192	—	nC

Notes

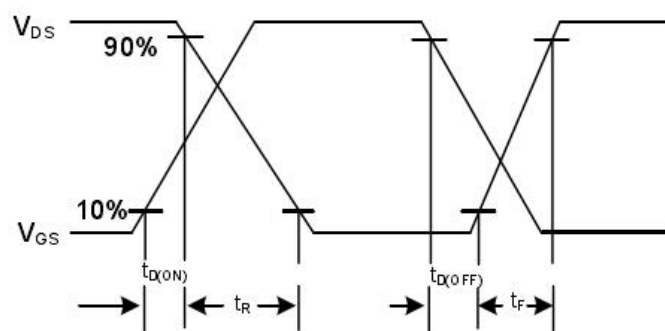
1. Repetitive Rating; pulse width limited by maximum junction temperature.
2. V_{DD}=30V, L=0.3mH, R_g=10Ω, I_{AS}=10A, T_J=25°C.
3. I_{SD}≤I_D, dI/dt=200A/us, V_{DD}≤BV_{DSS}, starting T_J=25°C, Pulse width≤300us; duty cycle≤2%.
4. Repetitive rating; pulse width limited by maximum junction temperature.

TEST CIRCUIT AND WAVEFORM

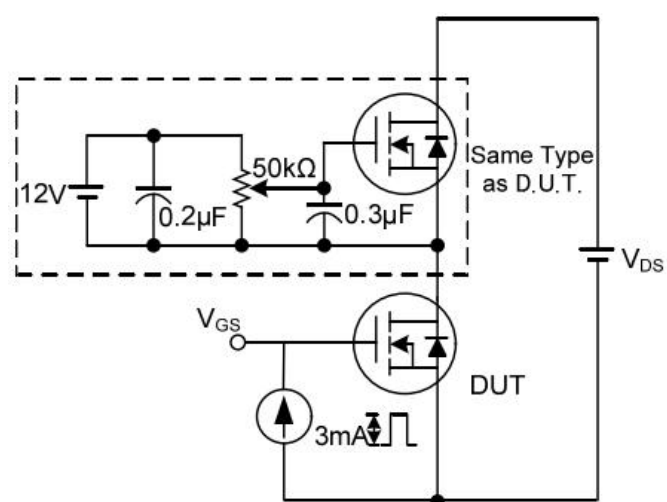
Peak Diode Recovery dv/dt Test CircuitPeak Diode Recovery dv/dt Waveforms



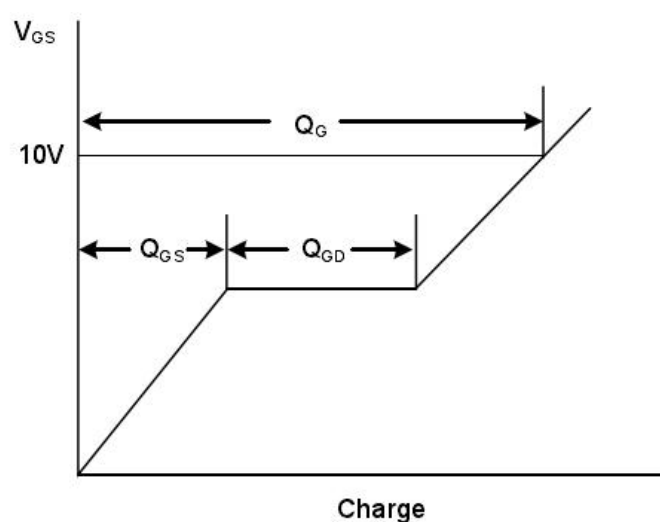
Switching Test Circuit



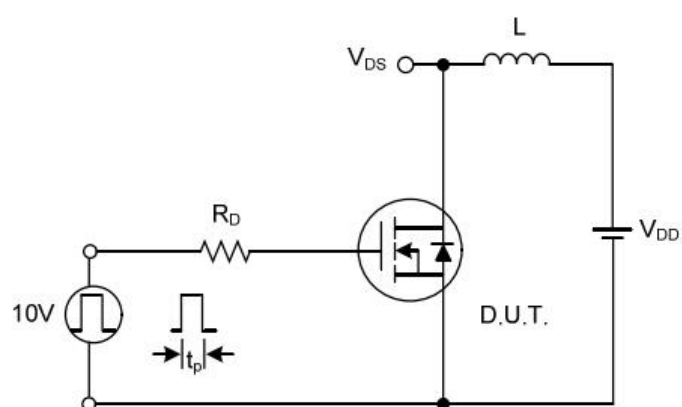
Switching Waveforms



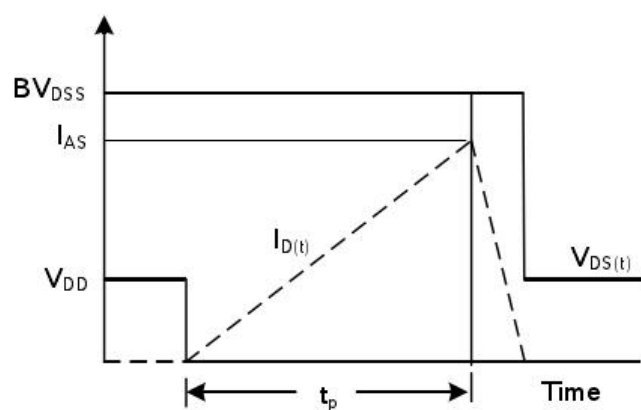
Gate Charge Test Circuit



Gate Charge Waveform

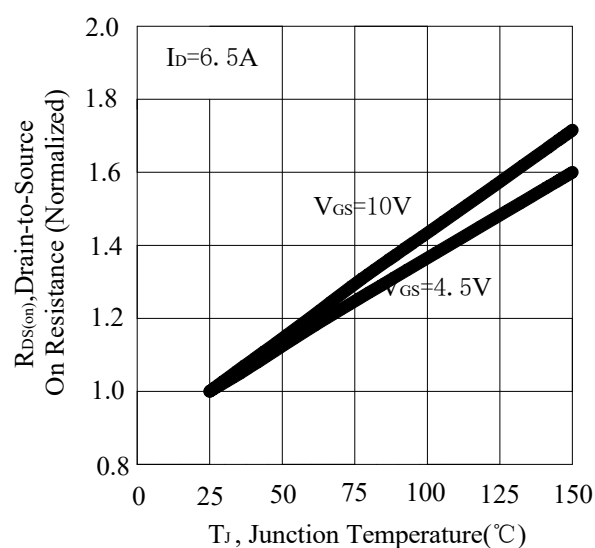
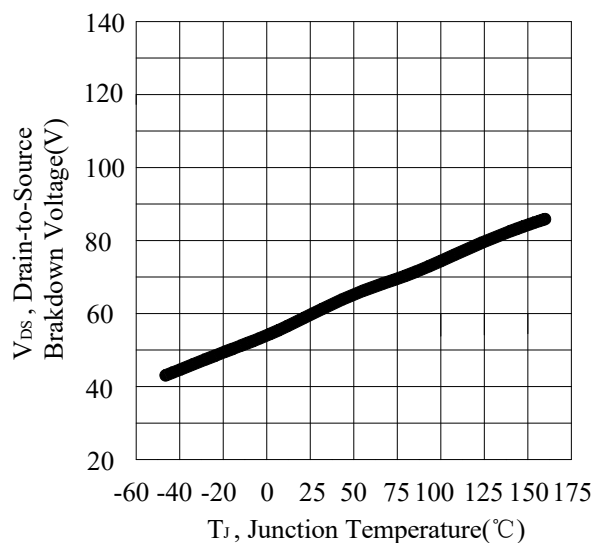
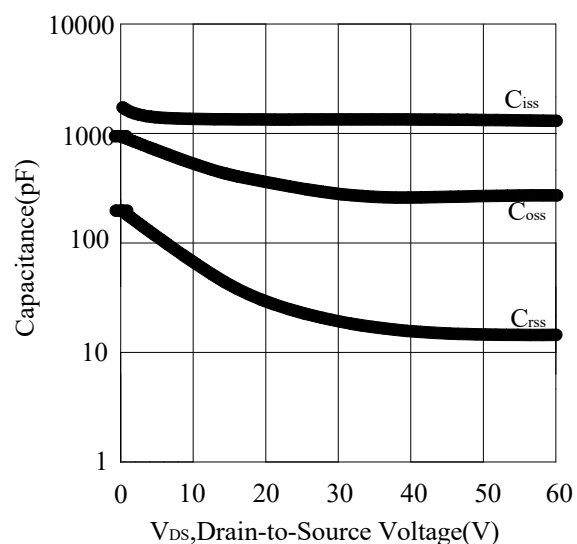
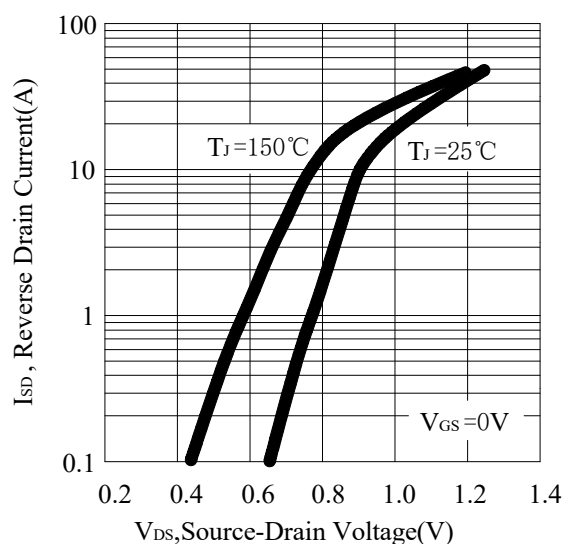
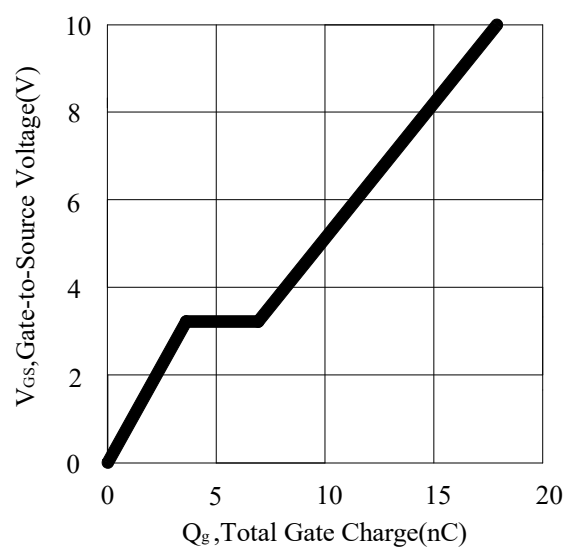
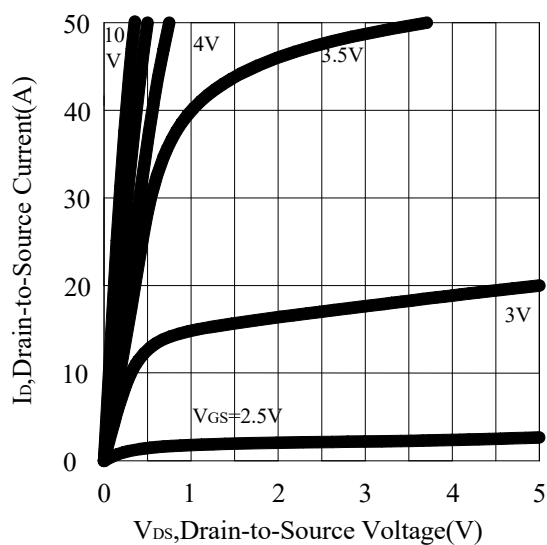


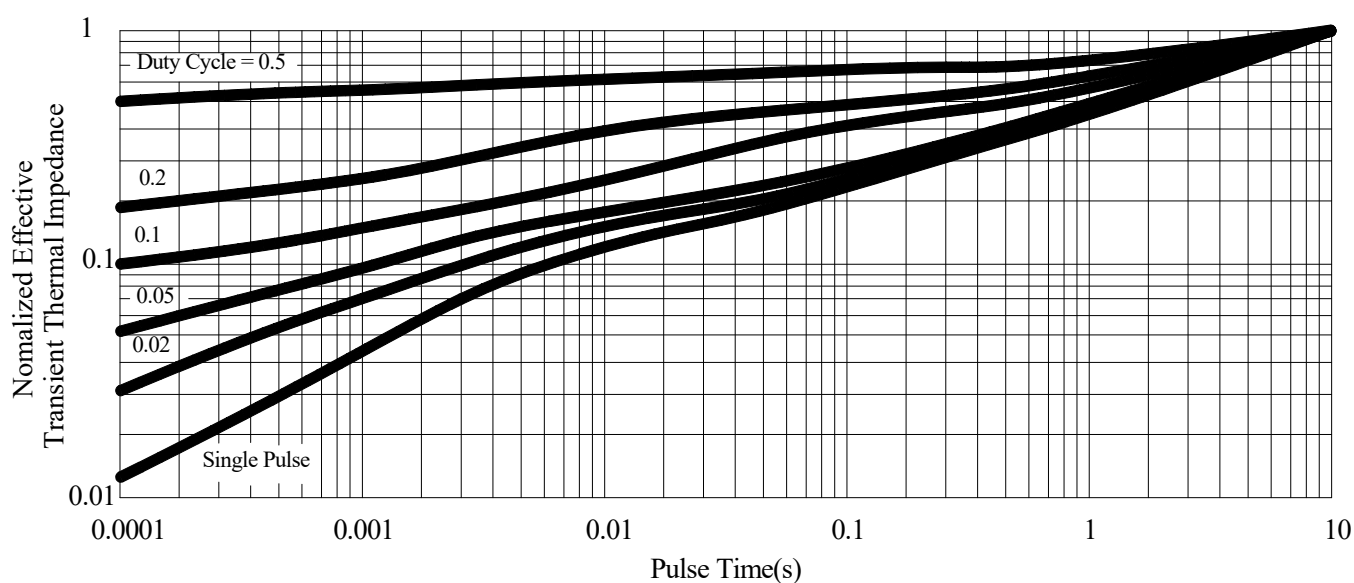
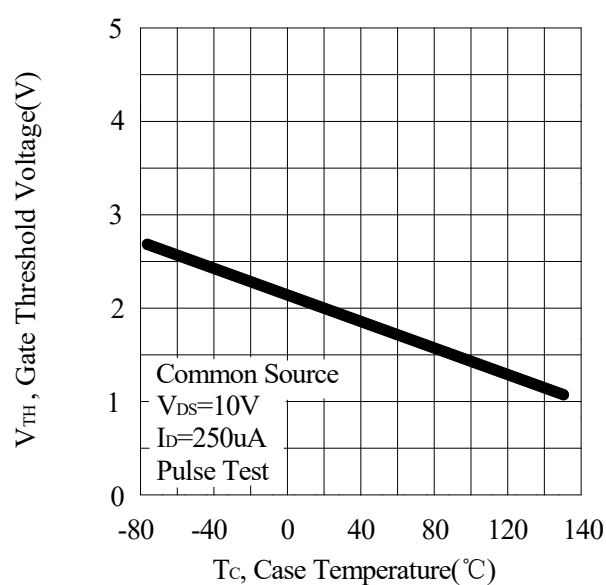
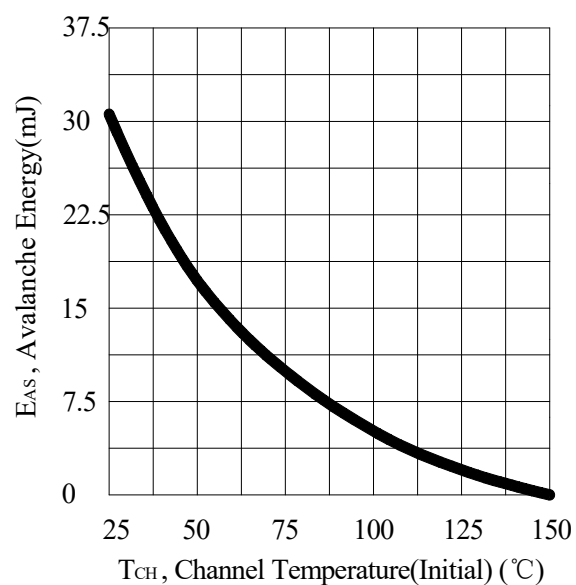
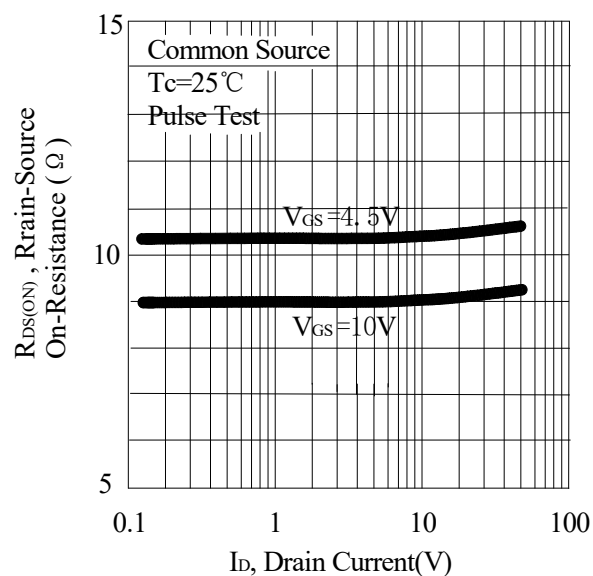
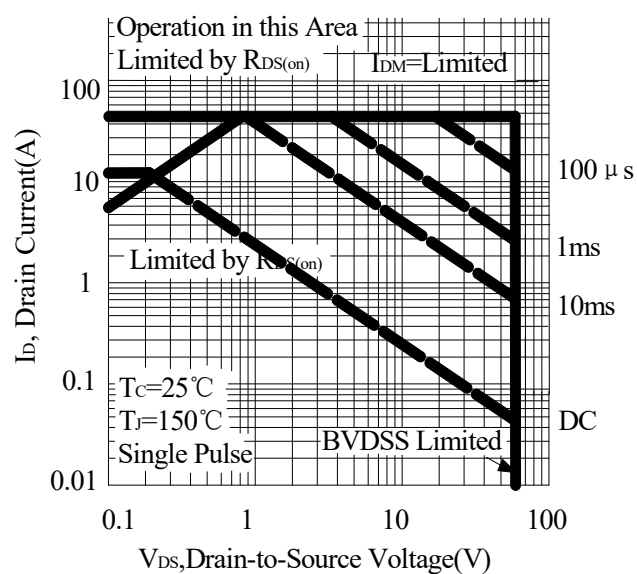
Unclamped Inductive Switching Test Circuit



Unclamped Inductive Switching Waveforms

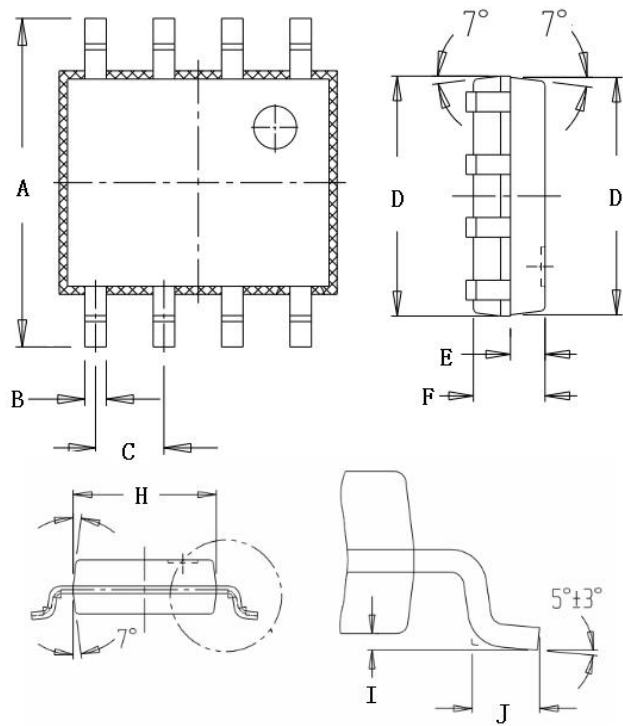
RATING AND CHARACTERISTIC CURVES





PACKAGE OUTLINE DIMENSIONS

SOP-8L



SOP8L		
Dim	Min	Max
A	.236 (6.0)	.245 (6.20)
B	.014 (0.37)	.017 (0.43)
C	—	.050 (1.27)
D	.188 (4.80)	.194 (4.92)
E	.025 (0.65)	.030 (0.75)
F	.055 (1.40)	.060 (1.50)
H	.149 (3.80)	.154 (3.90)
I	.003 (0.10)	.008 (0.20)
J	.019 (0.50)	.028 (0.70)

Dimensions in inches and (millimeters)

包装方式：编带