



Description

Dual N-channel Enhancement Mode MOSFET

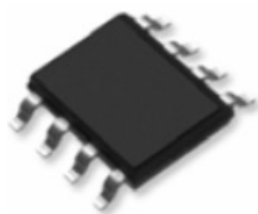
Features

- $V_{DS}=20V$, $I_D=6.5A$
- $R_{DS(ON)}=14m\Omega$ (Typ.) @ $V_{GS}=4.5V$
 $R_{DS(ON)}=19m\Omega$ (Typ.) @ $V_{GS}=2.5V$
- Low Gate Charge
- Low Reverse Recovery Charge
- Fast Switching
- Improved dv/dt Capability

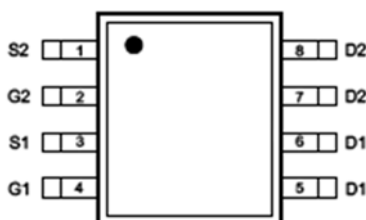
Application

- Uninterruptible Power Supply(UPS)
- DC-DC Power Converter
- Synchronous Rectification

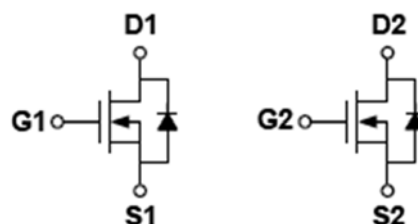
Package



SOP-8



Pin assignment



Absolute Maximum Ratings ($T_C=25^{\circ}C$ unless otherwise specified)

Symbol	Parameter		Max.	Units
V_{DSS}	Drain-Source Voltage		20	V
V_{GSS}	Gate-Source Voltage		± 12	V
I_D	Continuous Drain Current	$T_C = 25^{\circ}C$	6.5	A
		$T_C = 100^{\circ}C$	4	
I_{DM}	Pulsed Drain Current ^{note1}		26	A
P_D	Power Dissipation	$T_A = 25^{\circ}C$	1.25	W
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient		100	$^{\circ}C/W$
T_J, T_{STG}	Operating and Storage Temperature Range		-55 to +150	$^{\circ}C$

**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 =250μA	20	-	-	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =20V, V _{GS} =0V,	-	-	1.0	μA
I _{GSS}	Gate to Body Leakage Current	V _{DS} =0V, V _{GS} =±12V	-	-	±100	nA
On Characteristics						
V _{GS(th)}	Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	0.5	0.7	1.2	V
R _{DS(on)}	Static Drain-Source on-Resistance <small>note2</small>	V _{GS} =4.5V, I _D =6.5A	-	14	22	mΩ
		V _{GS} =2.5V, I _D =5.5A	-	19	27	
g _{FS}	Forward Transconductance	V _{DS} =5V, I _D =6A	-	10	-	S
Dynamic Characteristics						
C _{iSS}	Input Capacitance	V _{DS} =10V, V _{GS} = 0V, f = 1.0MHz	-	900	-	pF
C _{oSS}	Output Capacitance		-	220	-	pF
C _{rSS}	Reverse Transfer Capacitance		-	100	-	pF
Q _g	Total Gate Charge	V _{DS} =10V, I _D =6A, V _{GS} =4.5V	-	12	-	nC
Q _{gs}	Gate-Source Charge		-	2.3	-	nC
Q _{gd}	Gate-Drain(“Miller”) Charge		-	1	-	nC
Switching Characteristics						
t _{d(on)}	Turn-on Delay Time	V _{DD} =10V, I _D =6A, R _G =6Ω, V _{GEN} =4.5V	-	10	-	ns
t _r	Turn-on Rise Time		-	11	-	ns
t _{d(off)}	Turn-off Delay Time		-	35	-	ns
t _f	Turn-off Fall Time		-	30	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I _s	Maximum Continuous Drain to Source Diode Forward Current		-	-	6.5	A
I _{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	26	A

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

2. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$

Typical Performance Characteristics

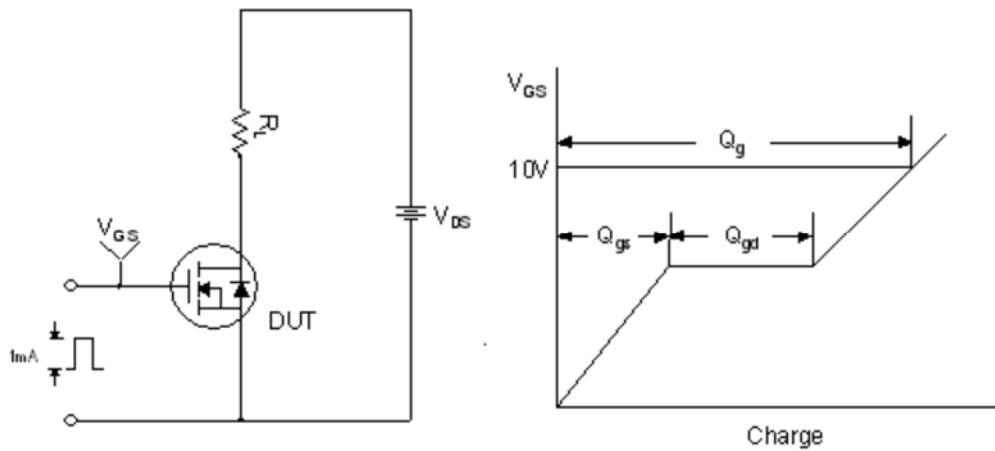


Figure 1. Gate Charge Test Circuit & Waveform

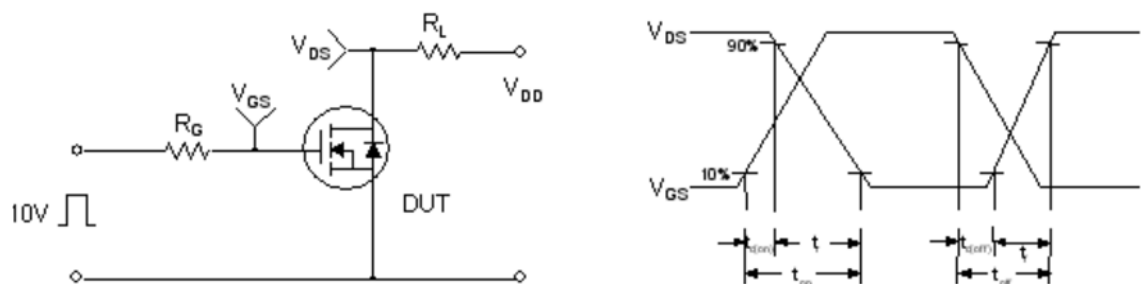


Figure 2. Resistive Switching Test Circuit & Waveforms

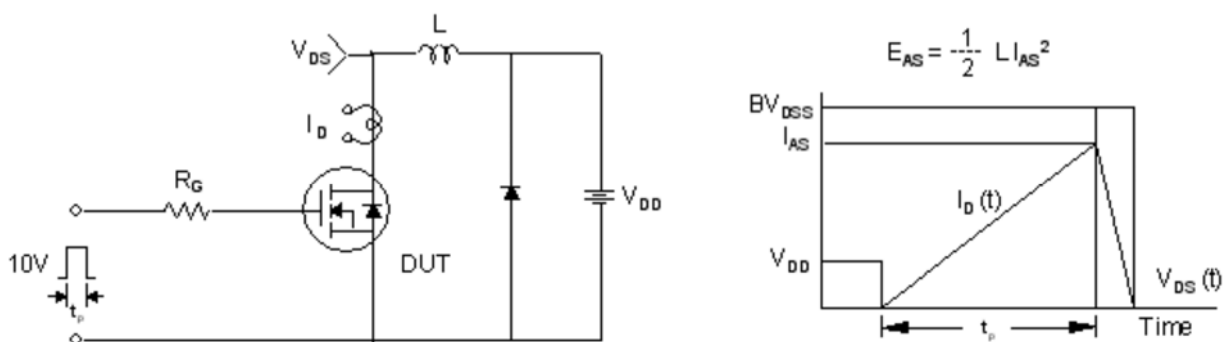


Figure 3. Unclamped Inductive Switching Test Circuit & Waveforms

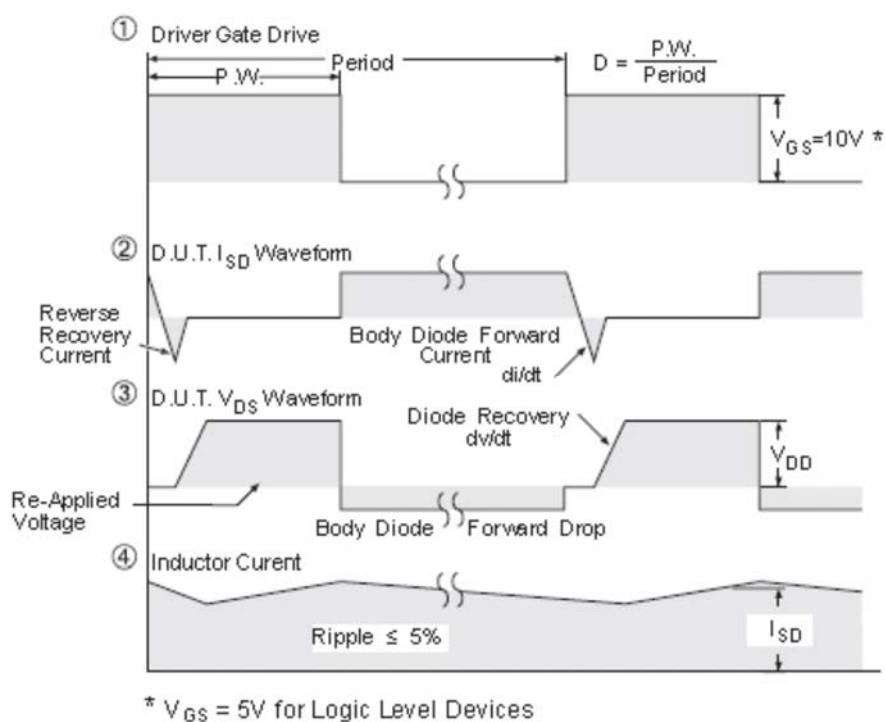
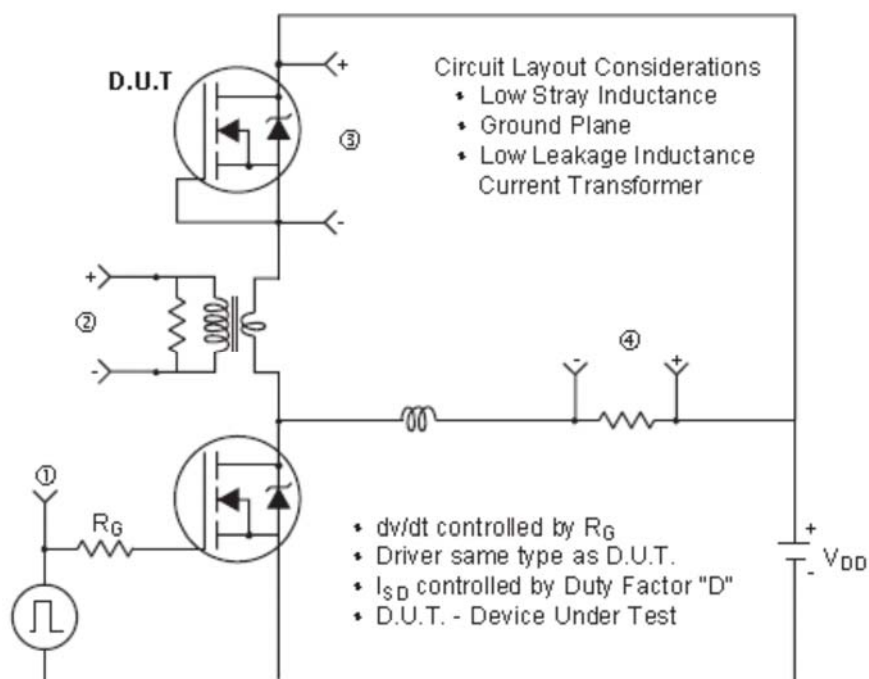
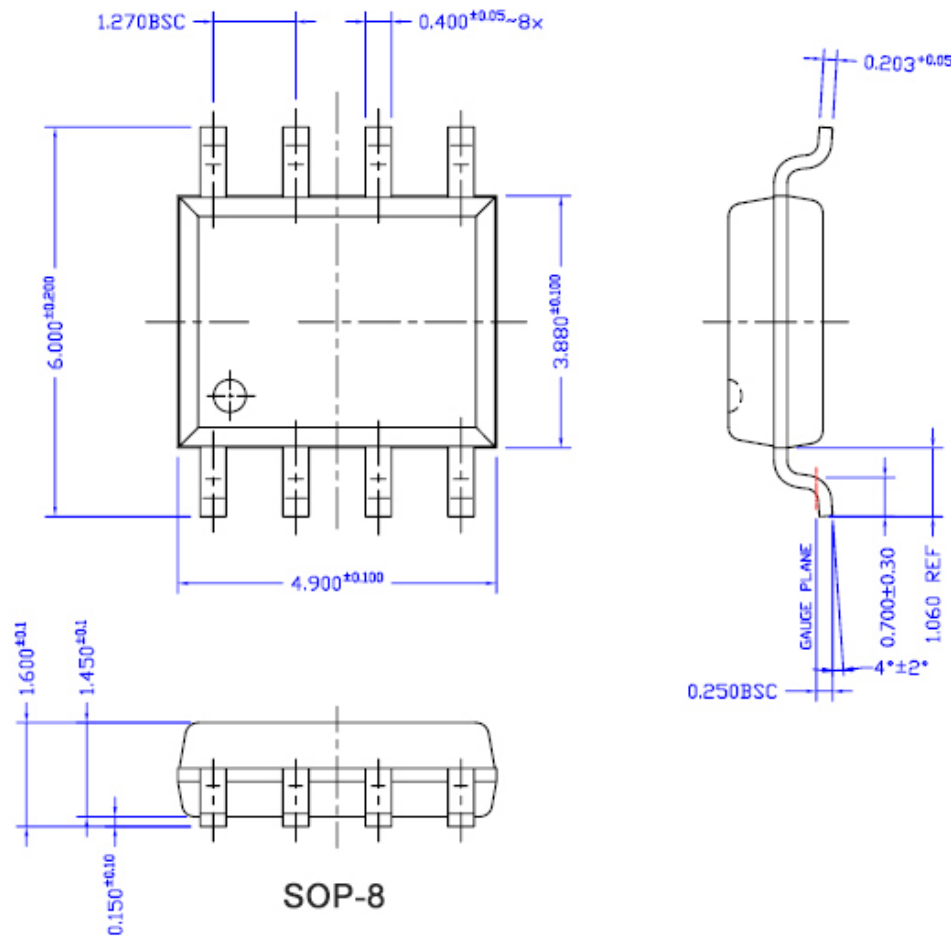


Figure 4. Peak Diode Recovery dv/dt Test Circuit & Waveforms (For N-channel)



Package Mechanical Data



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