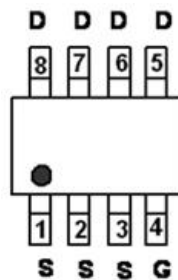
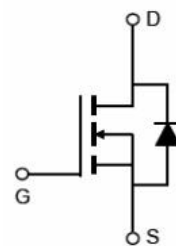


Main Product Characteristics:

V_{DSS}	40V
$R_{DS(on)}$	20m Ω (typ.)
I_D	6.3A


SOP-8

Pin Assignments

Schematic Diagram
Features and Benefits:

- Advanced MOSFET process technology
- Special designed for PWM, load switching and general purpose applications
- Ultra low on-resistance with low gate charge
- Fast switching and reverse body recovery
- 150°C operating temperature


Description:

It utilizes the latest processing techniques to achieve the high cell density and reduces the on-resistance with high repetitive avalanche rating. These features combine to make this design an extremely efficient and reliable device for use in power switching application and a wide variety of other applications.

Absolute Max Rating:

Symbol	Parameter	Max.	Units
$I_D @ T_A = 25^\circ\text{C}$	Continuous Drain Current ①	6.3	A
$I_D @ T_A = 100^\circ\text{C}$	Continuous Drain Current ①	4	
I_{DM}	Pulsed Drain Current ②	25.2	
$P_D @ T_A = 25^\circ\text{C}$	Power Dissipation ③	1.83	W
V_{DS}	Drain-Source Voltage	40	V
V_{GS}	Gate-to-Source Voltage	± 20	V
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
R _{θJA}	Junction-to-ambient (t ≤ 10s) ④	—	68	°C/W

Electrical Characteristics @T_A=25°C unless otherwise specified

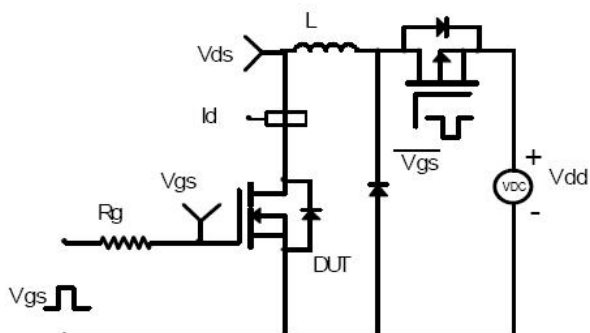
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	40	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	20	26	mΩ	V _{GS} =10V, I _D = 5A
		—	24.5	33		V _{GS} =4.5V, I _D = 4A
V _{GS(th)}	Gate threshold voltage	1	—	2.5	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} = 40V, V _{GS} = 0V
I _{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V _{GS} = 20V
		—	—	-100		V _{GS} = -20V
Q _g	Total gate charge	—	9	—	nC	I _D = 5A, V _{DS} =20V, V _{GS} = 10V
Q _{gs}	Gate-to-Source charge	—	2.8	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	2.7	—		
t _{d(on)}	Turn-on delay time	—	4.8	—	ns	V _{GS} =10V, V _{DS} =20V, R _{GEN} =3Ω, R _L =3.3Ω
t _r	Rise time	—	2.5	—		
t _{d(off)}	Turn-Off delay time	—	19	—		
t _f	Fall time	—	2.7	—		
C _{iss}	Input capacitance	—	780	—	pF	V _{GS} = 0V V _{DS} =20V f = 1MHz
C _{oss}	Output capacitance	—	56	—		
C _{riss}	Reverse transfer capacitance	—	35	—		

Source-Drain Ratings and Characteristics

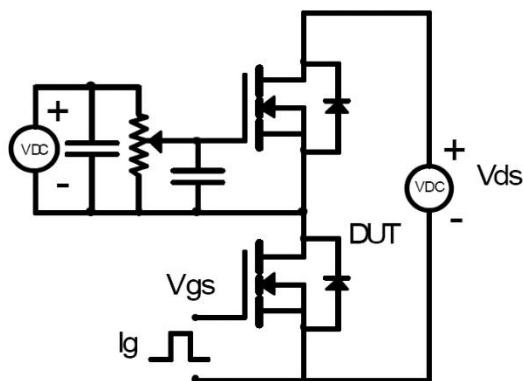
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode) ①	—	—	6.3	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode) ①	—	—	25.2	A	
V _{SD}	Diode Forward Voltage	—	—	1.2	V	I _S =5 A, V _{GS} =0V

Test Circuits and Waveforms

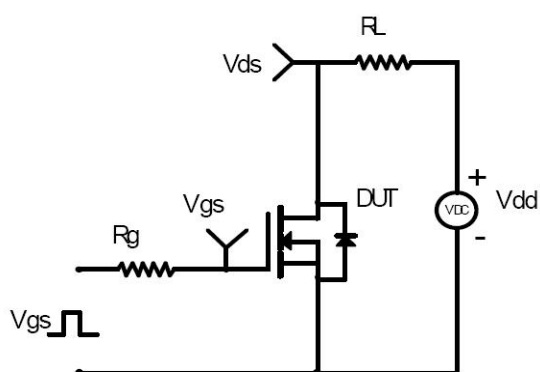
EAS Test Circuit:



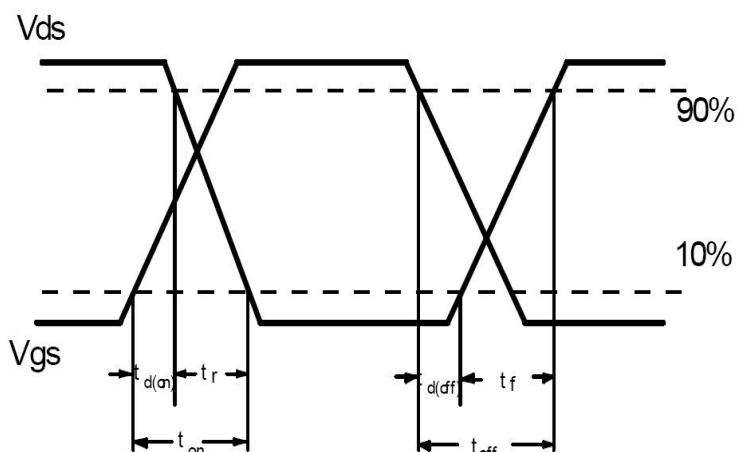
Gate Charge Test Circuit:



Switching Time Test Circuit:

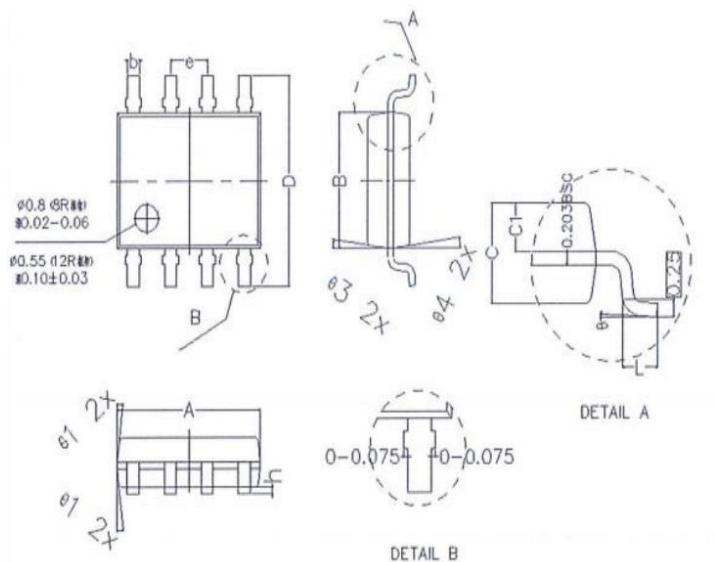


Switching Waveforms:



Notes:

- ① Calculated continuous current based on maximum allowable junction temperature.
- ② Repetitive rating; pulse width limited by max. junction temperature.
- ③ The power dissipation P_D is based on max. junction temperature, using junction-to-case thermal resistance.
- ④ The value of $R_{\theta JA}$ is measured with the device mounted on 1 in 2 FR-4 board with 2oz. Copper, in a still air environment with $T_A = 25^\circ C$

Mechanical Data:
SOP-8 Package Outline (Unit:mm)


COMMON DIMENSIONS (UNITS OF MEASURE 15 mm)			
	MIN	NORMAL	MAX
A	4.800	4.900	5.000
B	3.800	3.900	4.000
C	1.350	1.450	1.550
C1	0.650	0.700	0.750
D	5.950	6.120	6.280
L	0.500	0.600	0.700
b	0.350	0.400	0.450
h	0.070	0.150	0.250
e	1.270TYPE		
θ_1	7° TYPE(8R) 12° TYPE(12R)		
θ_2	7° TYPE(8R) 10° TYPE(12R)		
θ_3	8° TYPE(8R) 12° TYPE(12R)		
θ_4	8° TYPE(8R) 10° TYPE(12R)		
θ	0° ~ 8°		

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