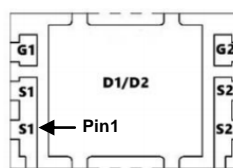
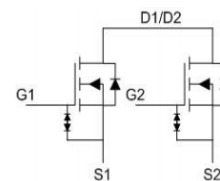


Main Product Characteristics:

V_{DSS}	20V
$R_{DS(on)}$	6m Ω (typ.)
I_D	12A


DFN 2x3-6

Pin Assignment

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
- ESD Protection HBM \geq 2KV


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, $V_{GS} @ 4.5\text{V}$ ①	12	A
$I_D @ T_A = 70^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 4.5\text{V}$ ①	8.8	
I_{DM}	Pulsed Drain Current ②	70	
$P_D @ T_A = 25^\circ\text{C}$	Power Dissipation ③	1.56	W
V_{DS}	Drain-Source Voltage	20	V
V_{GS}	Gate-to-Source Voltage	± 12	V
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

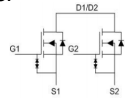
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
R _{θJA}	Junction-to-ambient (t ≤ 10s) ④	—	80	°C/W

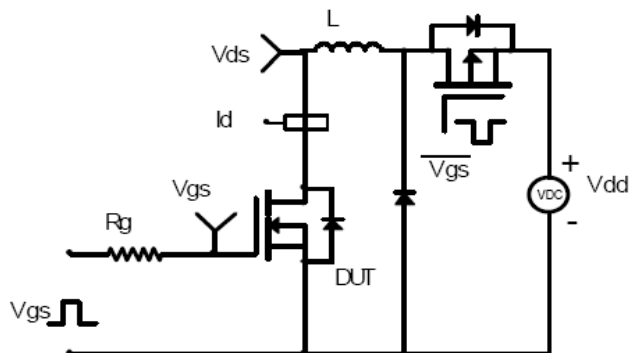
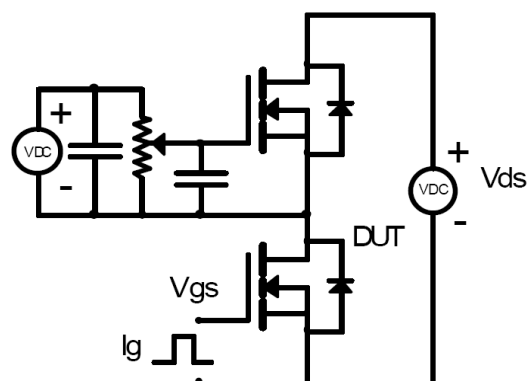
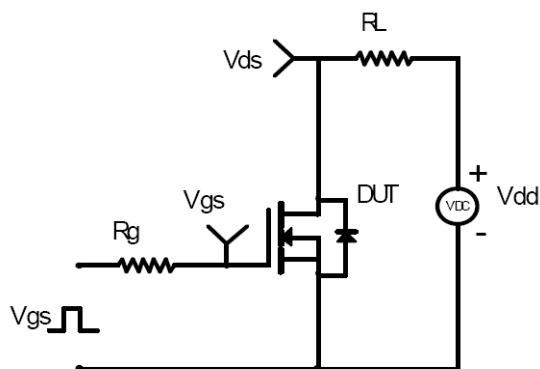
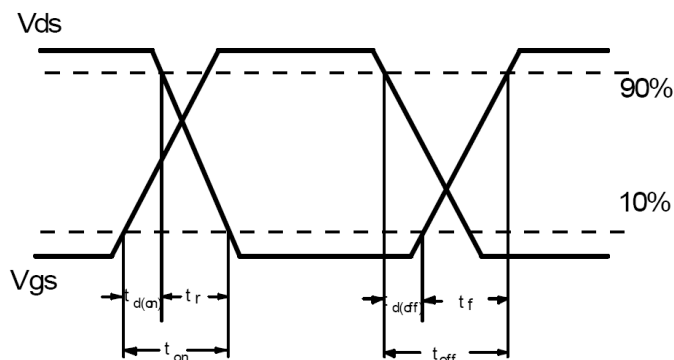
Electrical Characterizes @T_A=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	20	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	6	7.2	mΩ	V _{GS} = 4.5V, I _D = 5.5A
		—	6.2	7.5		V _{GS} = 4V, I _D = 5.5A
		—	6.5	8.2		V _{GS} = 3.7V, I _D = 5.5A
		—	7	9		V _{GS} = 3.1V, I _D = 5.5A
		—	8.2	10.2		V _{GS} = 2.5V, I _D = 5.5A
V _{GS(th)}	Gate threshold voltage	0.5	—	1.5	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} = 18V, V _{GS} = 0V
I _{GSS}	Gate-to-Source forward leakage	—	—	10	μA	V _{GS} = 12V
		—	—	-10		V _{GS} = -12V
Q _g	Total gate charge	—	22	—	nC	I _D = 10A, V _{DS} = 16V, V _{GS} = 4.5V
Q _{gs}	Gate-to-Source charge	—	3.2	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	8.2	—		
t _{d(on)}	Turn-on delay time	—	10	—	ns	V _{GS} = 4.5V, V _{DS} = 16V, R _{GEN} = 6Ω I _D = 5.5A
t _r	Rise time	—	40	—		
t _{d(off)}	Turn-Off delay time	—	65	—		
t _f	Fall time	—	30	—		
C _{iss}	Input capacitance	—	1760	—	pF	V _{GS} = 0V V _{DS} = 10V f = 1MHz
C _{oss}	Output capacitance	—	180	—		
C _{rss}	Reverse transfer capacitance	—	150	—		

Source-Drain Ratings and Characteristics

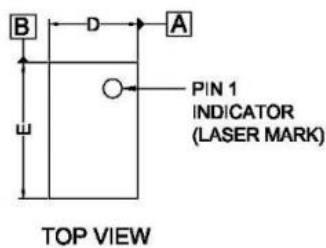
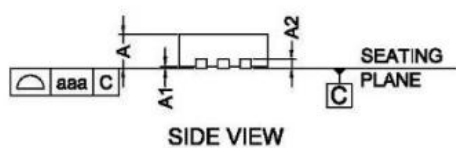
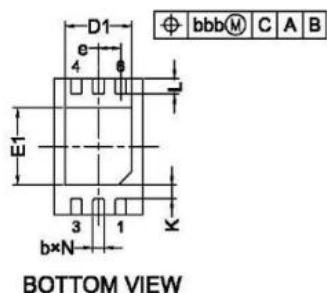
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	11	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode)	—	—	70	A	
V _{SD}	Diode Forward Voltage	—	—	1.2	V	

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 PD is based on max. junction temperature, using Junction-to-ambient 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 $T_A = 25^\circ\text{C}$

Mechanical Data:

COMMON DIMENSIONS
 (UNITS OF MEASURE=MILLIMETER)

SYMBOL	MIN	TYP	MAX
A	0.70	0.75	0.80
A1	0.00	0.02	0.05
A2	0.203		
b	0.20	0.25	0.30
D	1.95	2.00	2.05
D1	1.45	1.50	1.55
E	2.95	3.00	3.05
E1	1.65	1.70	1.75
e	0.50BSC		
L	0.30	0.35	0.40
K	0.20MIN		
N	6		
aaa	0.08		
bbb	0.10		

NOTES:

- 1.CONTROLLING DIMENSIONS ARE IN MILLIMETERS(ANGLES IN DEGREES).
2. COPLANARITY APPLIES TO THE EXPOSED PAD AS THE TERMINALS.

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