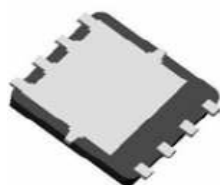
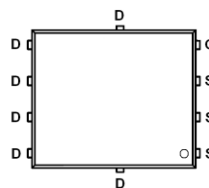
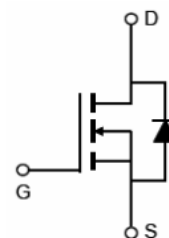


Main Product Characteristics:

V_{DSS}	100V
$R_{DS(on)}$	6.5m Ω (typ.)
I_D	100A



PQFN 5x6


 Marking and 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


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 @ TC = 25°C	Continuous Drain Current, V_{GS} @ 10V ①	100	A
I_{DM}	Pulsed Drain Current ②	300	
P_D @TC = 25°C	Power Dissipation ③	148	W
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @ L=0.3mH	130	mJ
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

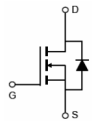
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
R _{θJC}	Junction-to-case ③	—	0.84	°C/W
R _{θJA}	Junction-to-ambient (t ≤ 10s) ④	—	62	°C/W

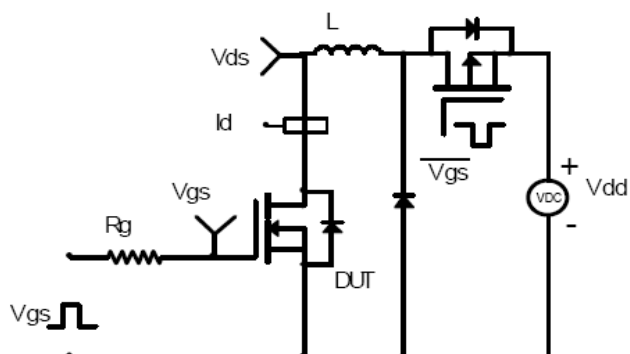
Electrical Characterizes @T_A=25°C unless otherwise specified

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
V _{(BR)DSS}	Drain-to-Source breakdown voltage	100	—	—	V	V _{GS} = 0V, I _D = 250μA
R _{DS(on)}	Static Drain-to-Source on-resistance	—	6.5	8	mΩ	V _{GS} =10V, I _D =12A
V _{GS(th)}	Gate threshold voltage	2	—	4	V	V _{DS} = V _{GS} , I _D = 250μA
I _{DSS}	Drain-to-Source leakage current	—	—	1	μA	V _{DS} = 100V, V _{GS} = 0V
I _{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V _{GS} = 20V
		—	—	-100		V _{GS} = -20V
Q _g	Total gate charge	—	62	—	nC	I _D = 10A, V _{DS} =50V, V _{GS} = 10V
Q _{gs}	Gate-to-Source charge	—	8	—		
Q _{gd}	Gate-to-Drain("Miller") charge	—	15	—		
t _{d(on)}	Turn-on delay time	—	25	—	ns	V _{GS} =10V, V _{DS} =50V, R _{GEN} =2Ω I _D = 10A
t _r	Rise time	—	10	—		
t _{d(off)}	Turn-Off delay time	—	68	—		
t _f	Fall time	—	45	—		
C _{iss}	Input capacitance	—	3550	—	pF	V _{GS} = 0V V _{DS} = 50V f = 1MHz
C _{oss}	Output capacitance	—	570	—		
C _{riss}	Reverse transfer capacitance	—	10	—		

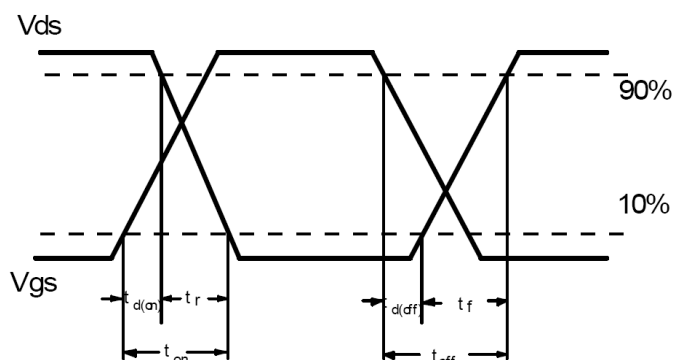
Source-Drain Ratings and Characteristics

Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I _S	Continuous Source Current (Body Diode)	—	—	100	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I _{SM}	Pulsed Source Current (Body Diode)	—	—	300	A	
V _{SD}	Diode Forward Voltage	—	—	1.3	V	I _S =30A, V _{GS} =0V
t _{rr}	Reverse Recovery Time	—	70	—	ns	I _S =10A, di/dt=100A/us
Q _{rr}	Reverse Recovery Charge	—	165	—	nC	

Test circuits and Waveforms

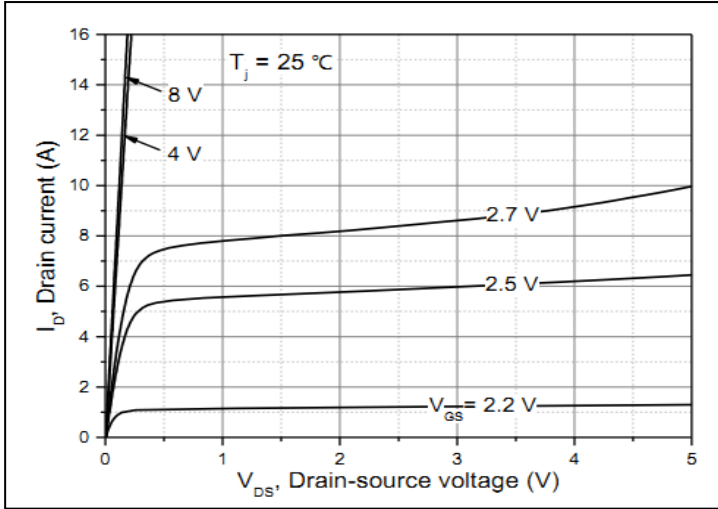
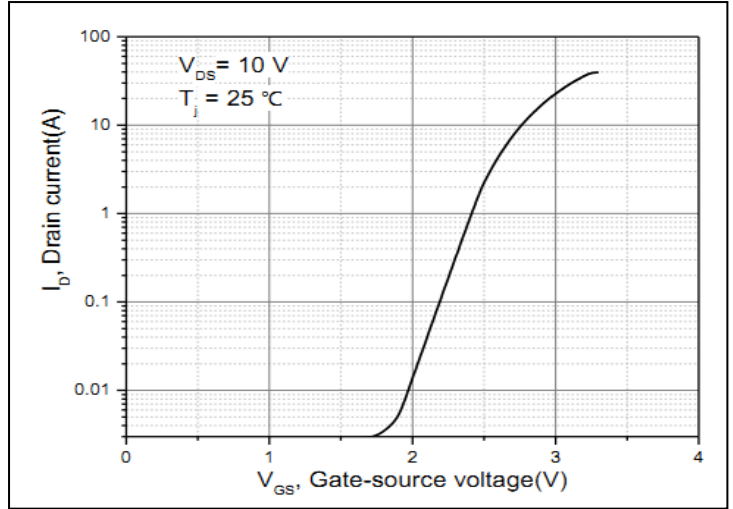
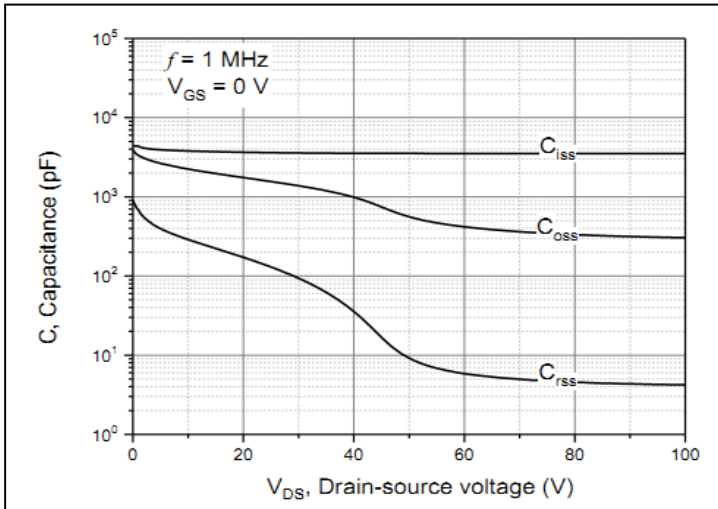
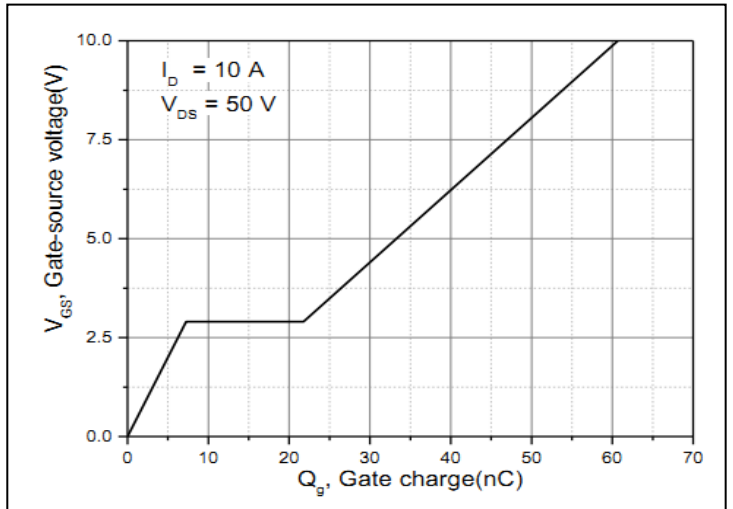
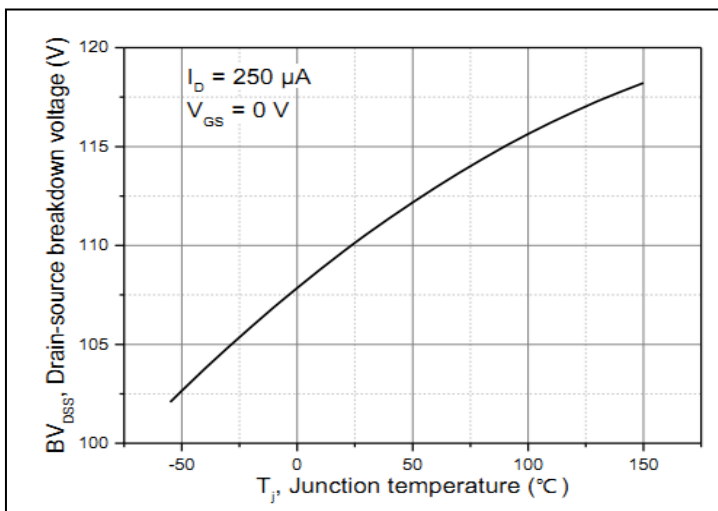
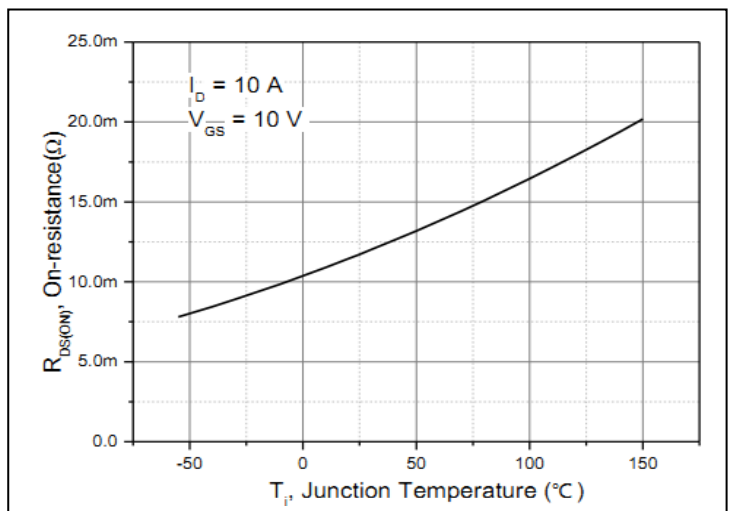
EAS Test Circuit:

Gate charge test circuit:

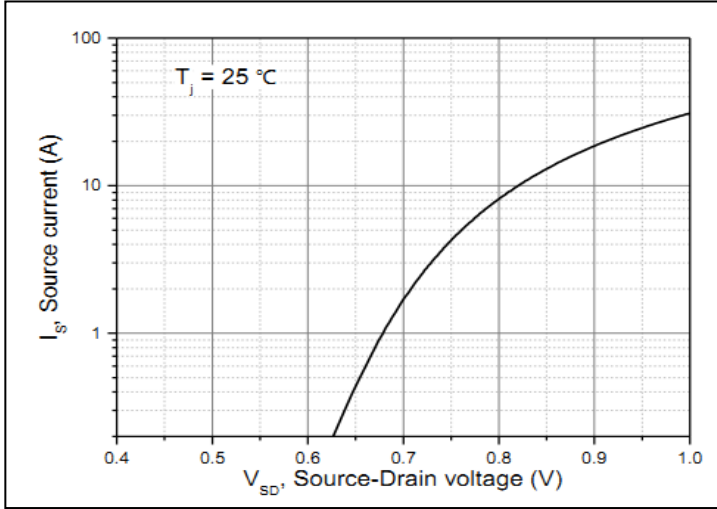
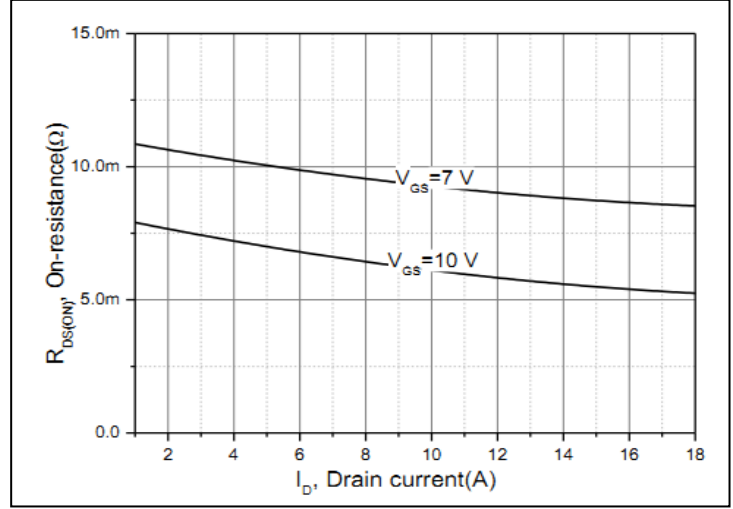
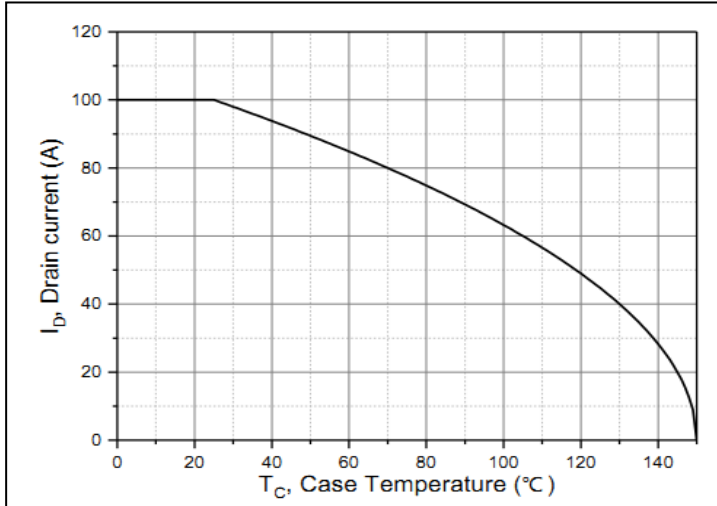
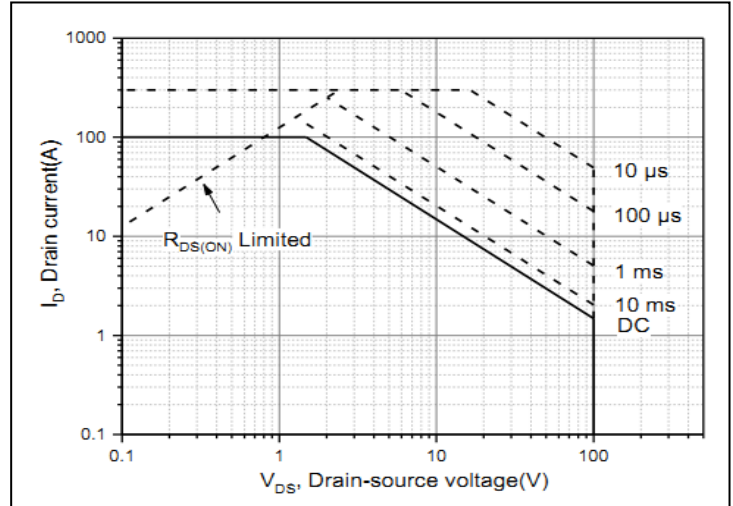
Switching Time Test Circuit:

Switching Waveforms:


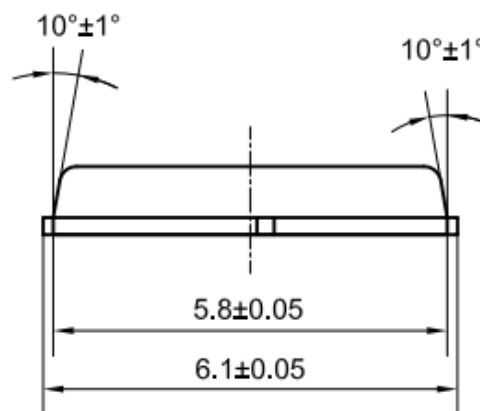
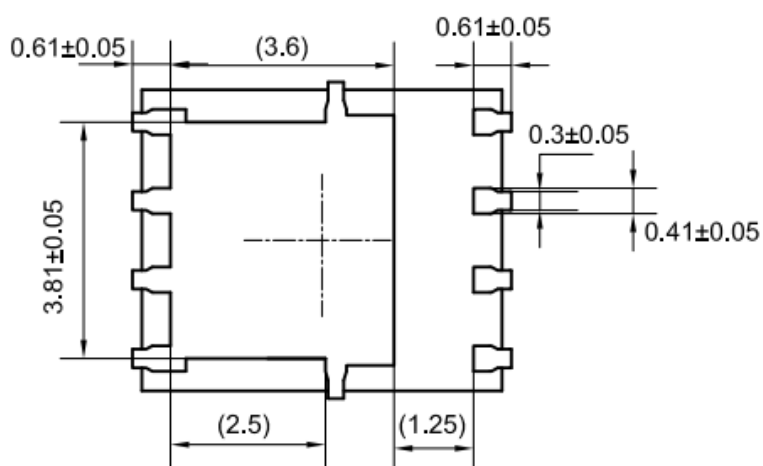
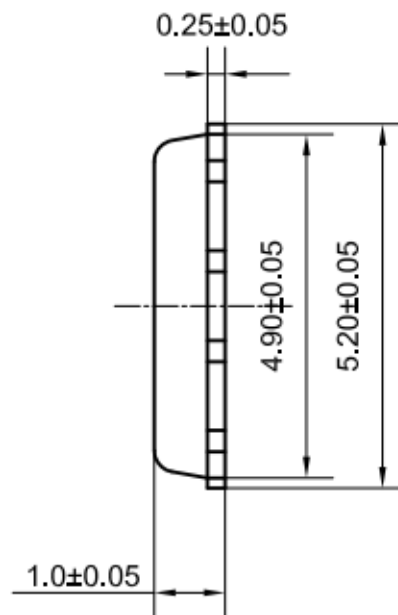
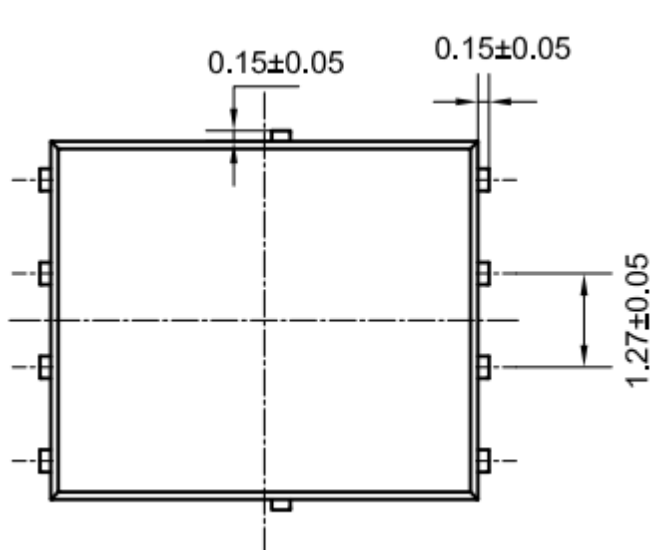
Notes:

- 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-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 $T_A = 25^\circ\text{C}$

Typical electrical and thermal characteristics

Figure 1: Typical Output Characteristics

Figure 2: Transfer Characteristics

Figure 3: Capacitance

Figure 4: Gate Charge

Figure 5: Drain-Source Breakdown Voltage

Figure 6: Normalized On-Resistance Vs. Junction Temperature

Typical electrical and thermal characteristics

Figure 7: Forward Characteristics Of Body Diode

Figure 8: Drain-Source On-state Resistance

Figure 9: Drain Current

Figure 10: Safe Operation Area

Mechanical Data:



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