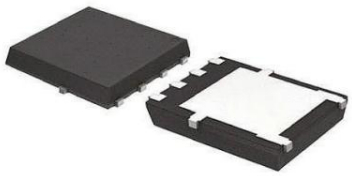
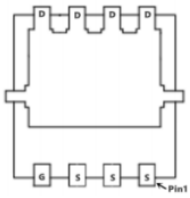
Main Product Characteristics:

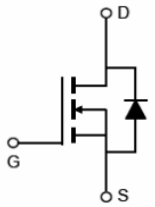
V_{DSS}	30V
R_{DS}(on)	1.3mΩ (typ.)
I_D	135A



DFN 5*6-8L



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℃ 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_C = 25°C	Continuous Drain Current, V_{GS} @ 10V ①	135	A
I_D @ T_C = 100°C	Continuous Drain Current, V_{GS} @ 10V ①	97	
I_{DM}	Pulsed Drain Current ②	350	
P_D @T_C = 25°C	Power Dissipation ③	62.5	W
V_{DS}	Drain-Source Voltage	30	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @L=0.1mH	151	mJ
I_{AS}	Avalanche Current @L=0.1mH	55	A
T_J T_{STG}	Operating Junction and Storage Temperature Range	-55 to +150	°C

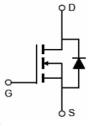
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case ③	—	2	℃/W
$R_{\theta JA}$	Junction-to-ambient (t ≤ 10s) ④	—	50	℃/W

Electrical Characterizes @T_A=25℃ unless otherwise specified

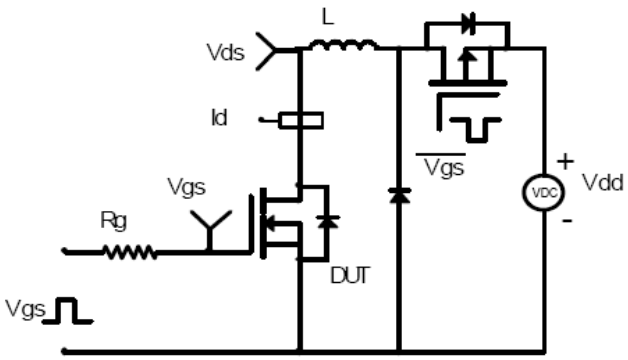
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	30	—	—	V	V_{GS} = 0V, I_D = 250μA
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	1.3	1.6	mΩ	V_{GS}=10V,I_D =20A
		—	1.9	2.5		V_{GS}=4.5V,I_D =20A
$V_{GS(th)}$	Gate threshold voltage	1.2	1.6	2.2	V	V_{DS} = V_{GS}, I_D =250μA
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	V_{DS} =24V,V_{GS} = 0V
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	V_{GS} =20V
		—	—	-100		V_{GS} = -20V
Q_g	Total gate charge	—	42	—	nC	I_D = 20A,
Q_{gs}	Gate-to-Source charge	—	9.5	—		V_{DS}=15V,
Q_{gd}	Gate-to-Drain("Miller") charge	—	6.3	—		V_{GS} = 4.5V
$t_{d(on)}$	Turn-on delay time	—	10	—	ns	V_{GS}=10V, V_{DS}=15V, R_{GEN}=3.3Ω I_D = 20A
t_r	Rise time	—	6	—		
$t_{d(off)}$	Turn-Off delay time	—	54	—		
t_f	Fall time	—	8	—		
C_{iss}	Input capacitance	—	3400	—	pF	V_{GS} = 0V
C_{oss}	Output capacitance	—	1900	—		V_{DS} = 15V
C_{rss}	Reverse transfer capacitance	—	190	—		f = 1MHz

Source-Drain Ratings and Characteristics

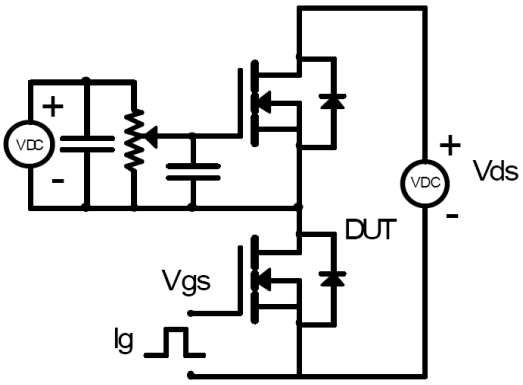
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode)	—	—	100	A	MOSFET symbol showing the integral reverse p-n junction diode. 
V_{sd}	Diode Forward Voltage	—	—	1.2	V	I_S=1A, V_{GS}=0V

Test circuits and Waveforms

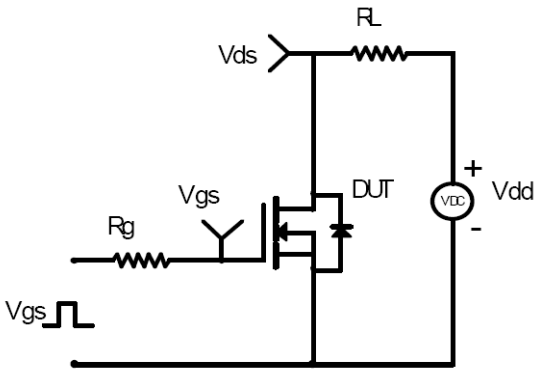
EAS Test Circuit:



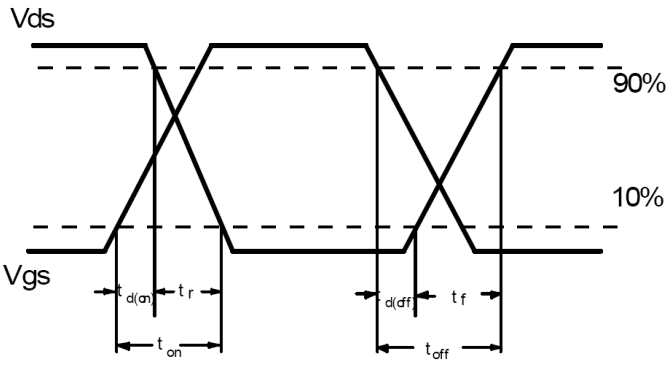
Gate charge test circuit:



Switching Time Test Circuit:



Switching Waveforms:



Notes:

①Calculated continuous current based on maximum allowable junction temperature.

②Repetitive rating; pulse width limited by max. junction temperature.

③The power dissipation PD is based on max. junction temperature, using junction-to-case thermal resistance.

④The 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 TA =25°C

Typical electrical and thermal characteristics

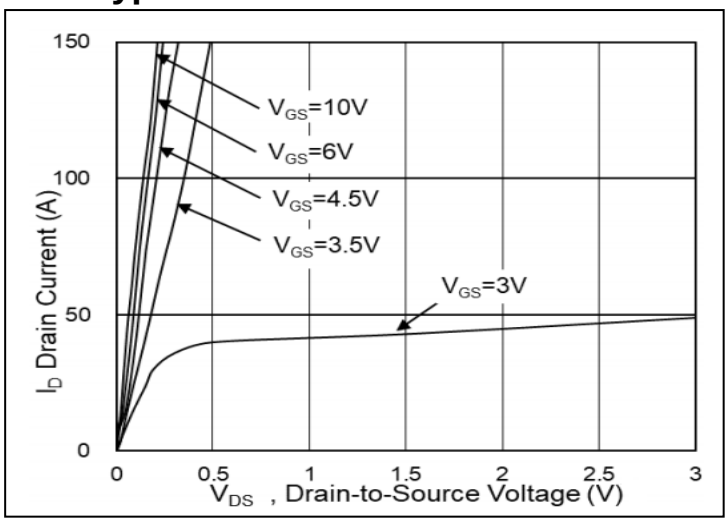


Figure 1: Typical Output Characteristics

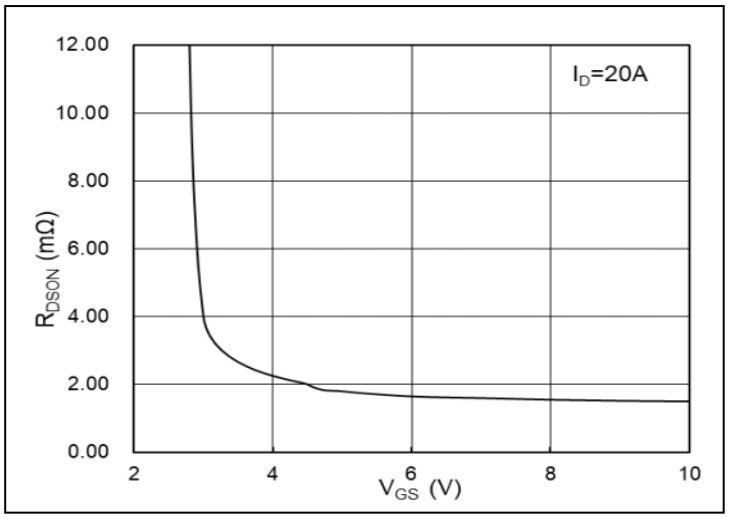


Figure 2: On-Resistance vs. G-S Voltage

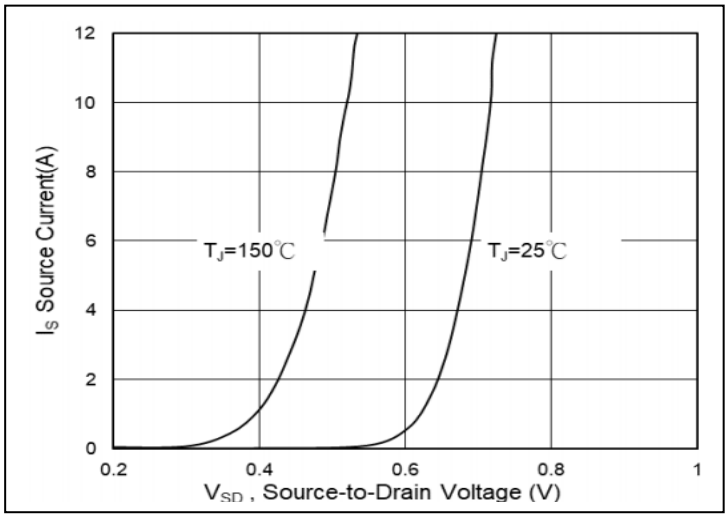


Figure 3: Source Drain Forward Characteristics

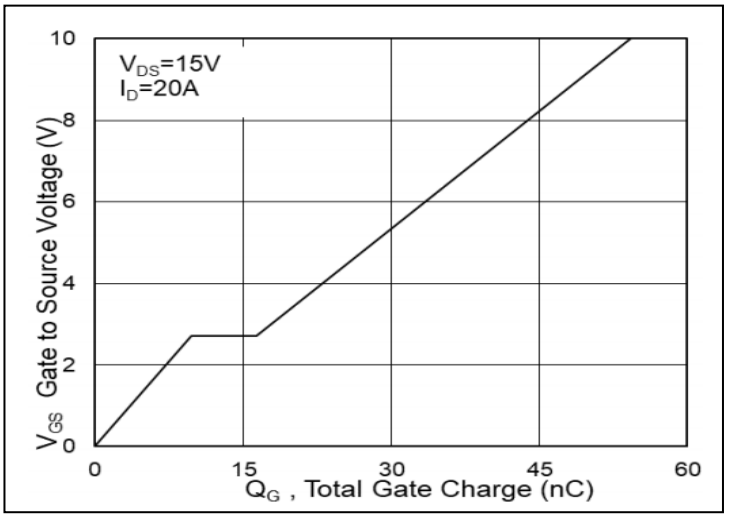


Figure 4: Gate Charge Characteristics

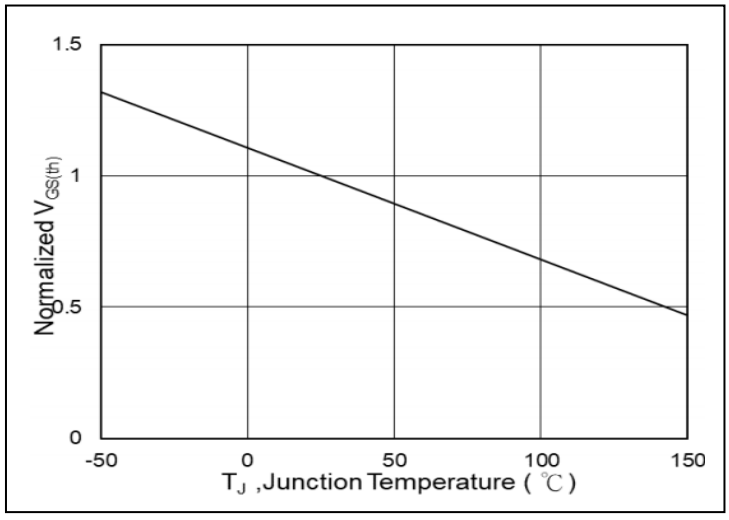


Figure 5: Normalized V_{GS}(th) vs. Junction Temperature

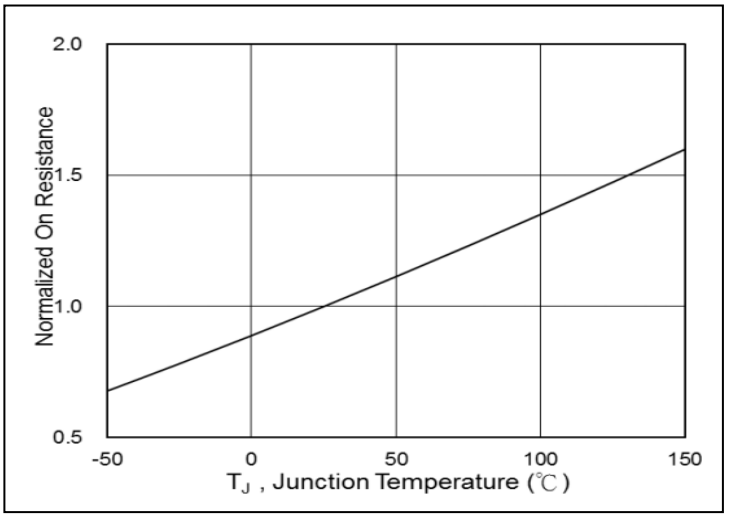


Figure 6: Normalized On-Resistance Vs. Case Temperature

Typical electrical and thermal characteristics

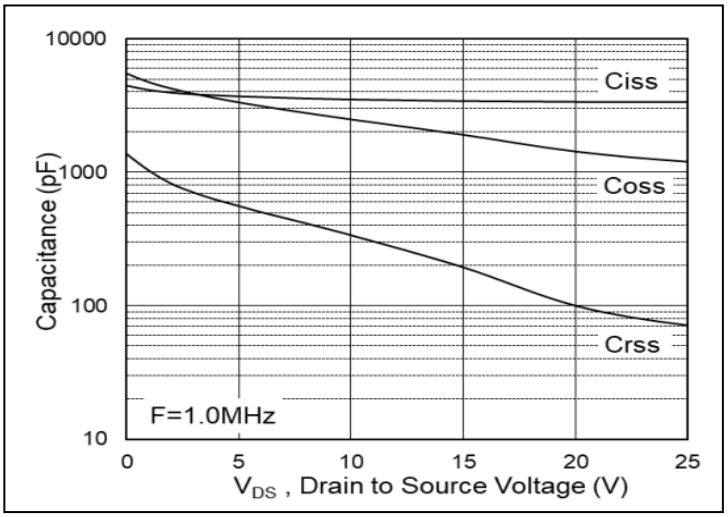


Figure 7: Capacitance

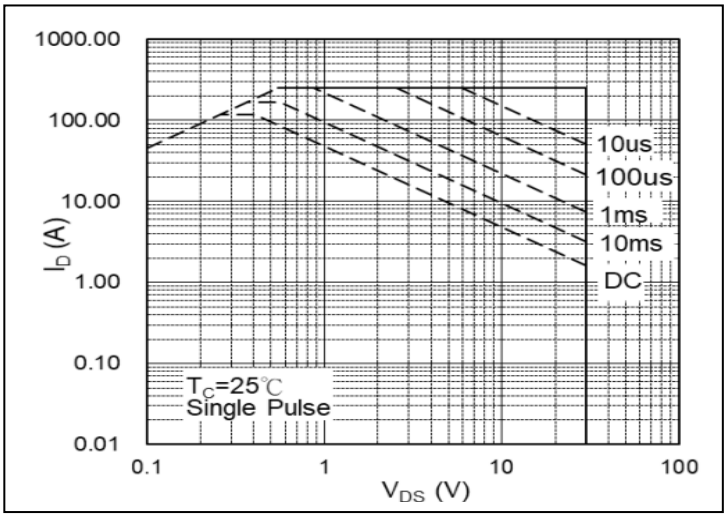


Figure 8: Safe Operation Area

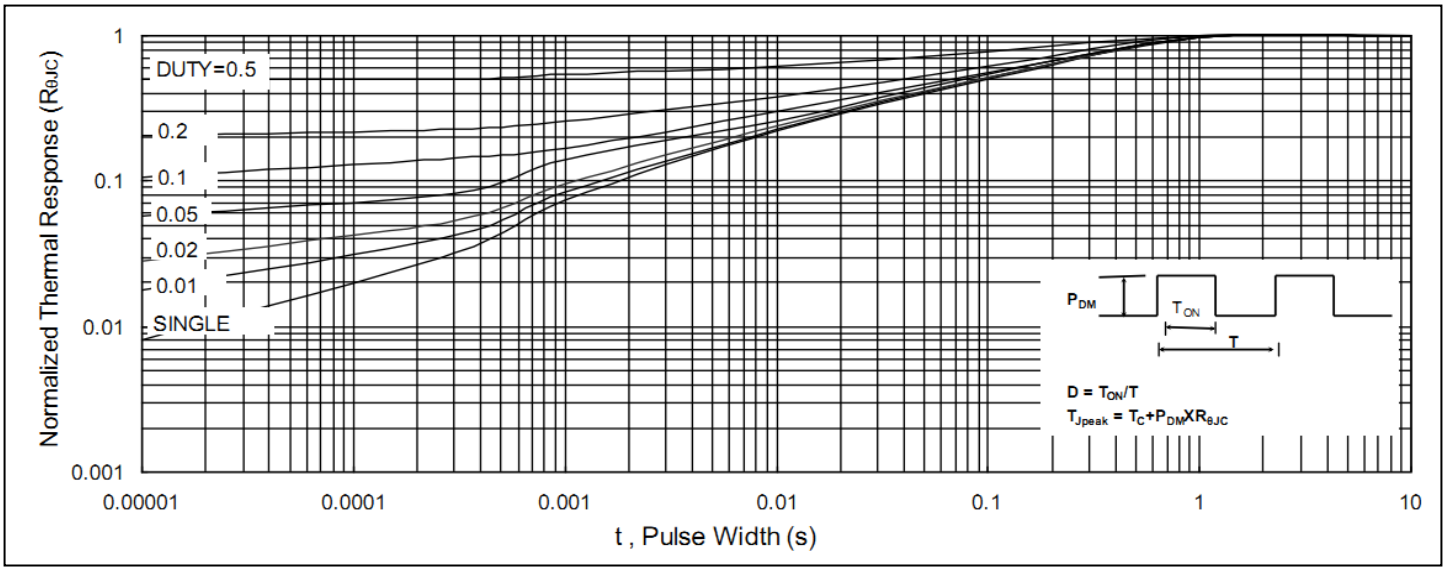
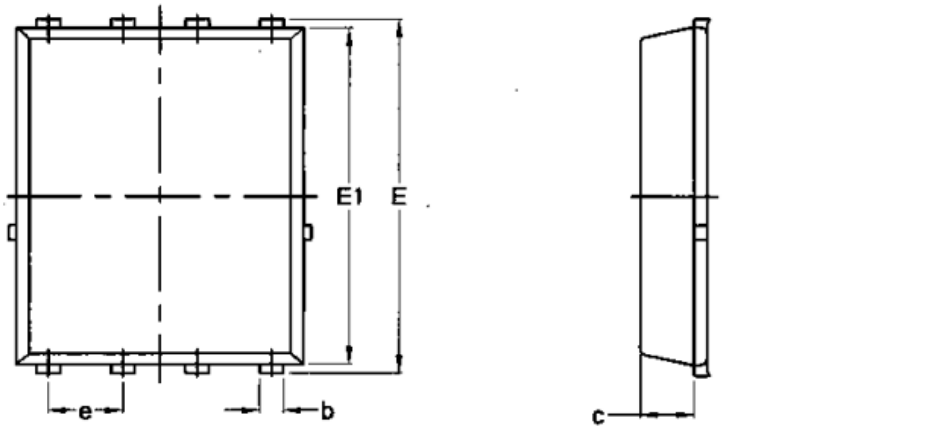
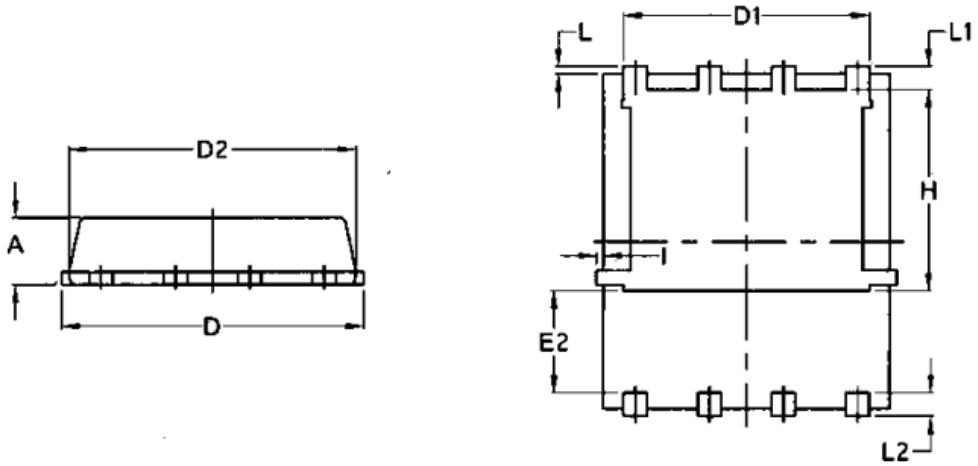


Figure 9: Transient Thermal Impedance

Mechanical Data：





Symbol	Common			
	mm		Inch	
	Mim	Max	Min	Max
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.0970	0.0324	0.082
D	4.80	5.40	0.1890	0.2126
D1	4.11	4.31	0.1618	0.1697
D2	4.80	5.00	0.1890	0.1969
E	5.95	6.15	0.2343	0.2421
E1	5.65	5.85	0.2224	0.2303
E2	1.60	/	0.0630	/
e	1.27 BSC		0.05 BSC	
L	0.05	0.25	0.0020	0.0098
L1	0.38	0.50	0.0150	0.0197
L2	0.38	0.50	0.0150	0.0197
H	3.30	3.50	0.1299	0.1378
I	/	0.18	/	0.0070

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