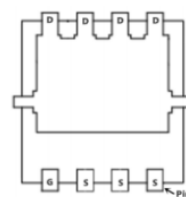
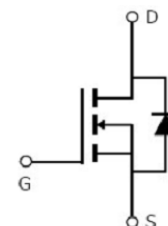


Main Product Characteristics

V_{DSS}	100V
$R_{DS(on)}$	8.5m Ω (typ.)
I_D	60A ①


DFN 5*6-8L

Pin Assignment

Schematic Diagram

Features and Benefits

- Advanced 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
$I_D @ T_C = 25^\circ\text{C}$	Continuous Drain Current, $V_{GS} @ 10\text{V}$ ①	60	A
I_{DM}	Pulsed Drain Current ②	210	
$P_D @ T_C = 25^\circ\text{C}$	Power Dissipation ③	125	W
V_{DS}	Drain-Source Voltage	100	V
V_{GS}	Gate-to-Source Voltage	± 20	V
E_{AS}	Single Pulse Avalanche Energy @ $L=0.3\text{mH}$	100	mJ
$T_J \quad T_{STG}$	Operating Junction and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

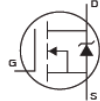
Thermal Resistance

Symbol	Characterizes	Typ.	Max.	Units
$R_{\theta JC}$	Junction-to-case ③	—	1	$^{\circ}\text{C}/\text{W}$
$R_{\theta JA}$	Junction-to-ambient ($t \leq 10\text{s}$) ④	—	62	$^{\circ}\text{C}/\text{W}$

Electrical Characterizes @ $T_A=25^{\circ}\text{C}$ unless otherwise specified

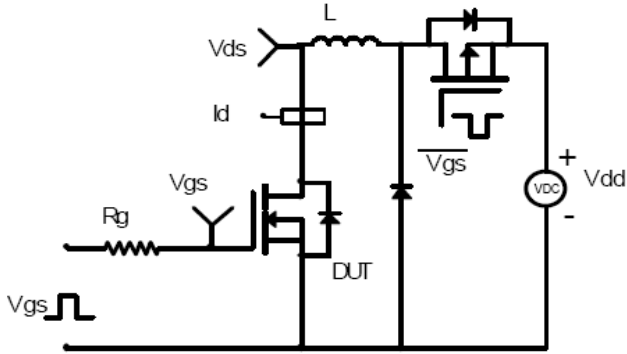
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
$V_{(BR)DSS}$	Drain-to-Source breakdown voltage	100	—	—	V	$V_{GS} = 0\text{V}, I_D = 250\mu\text{A}$
$R_{DS(on)}$	Static Drain-to-Source on-resistance	—	8.5	10	m Ω	$V_{GS}=10\text{V}, I_D=10\text{A}$
		—	9.5	12		$V_{GS}=4.5\text{V}, I_D=10\text{A}$
$V_{GS(th)}$	Gate threshold voltage	1	—	2.5	V	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$
I_{DSS}	Drain-to-Source leakage current	—	—	1	μA	$V_{DS} = 100\text{V}, V_{GS} = 0\text{V}$
I_{GSS}	Gate-to-Source forward leakage	—	—	100	nA	$V_{GS} = 20\text{V}$
		—	—	-100		$V_{GS} = -20\text{V}$
Q_g	Total gate charge (4.5V)	—	48	—	nC	$I_D = 25\text{A},$ $V_{DS}=50\text{V},$ $V_{GS} = 10\text{V}$
Q_{gs}	Gate-to-Source charge	—	6	—		
Q_{gd}	Gate-to-Drain("Miller") charge	—	12	—		
$t_{d(on)}$	Turn-on delay time	—	20	—	nS	$V_{GS}=10\text{V}, V_{DD} = 50\text{V},$ $R_{GEN}=2.2\Omega$ $I_D = 25\text{A}$
t_r	Rise time	—	5	—		
$t_{d(off)}$	Turn-Off delay time	—	50	—		
t_f	Fall time	—	9	—		
C_{iss}	Input capacitance	—	2600	—	pF	$V_{GS} = 0\text{V}$ $V_{DS} = 50\text{V}$ $f = 1\text{MHz}$
C_{oss}	Output capacitance	—	360	—		
C_{riss}	Reverse transfer capacitance	—	6	—		

Source-Drain Ratings and Characteristics

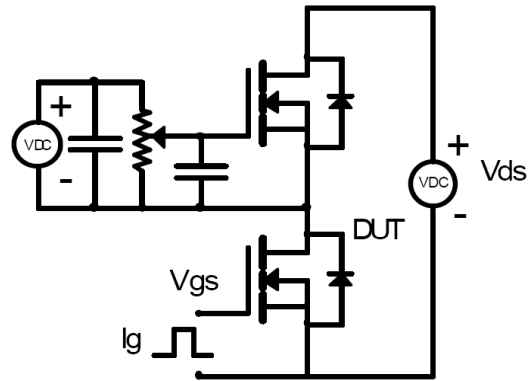
Symbol	Parameter	Min.	Typ.	Max.	Units	Conditions
I_S	Continuous Source Current (Body Diode) ①	—	—	70	A	MOSFET symbol showing the integral reverse p-n junction diode. 
I_{SM}	Pulsed Source Current (Body Diode) ①	—	—	210	A	
V_{SD}	Diode Forward Voltage	—	—	1.3	V	$I_S=12\text{A}, V_{GS}=0\text{V}, T_J = 25^{\circ}\text{C}$
t_{rr}	Reverse Recovery Time	—	60	—	ns	$I_S=12\text{A}, di/dt=100\text{A}/\mu\text{s}$
Q_{rr}	Reverse Recovery Charge	—	106	—	nC	

Test circuits and Waveforms

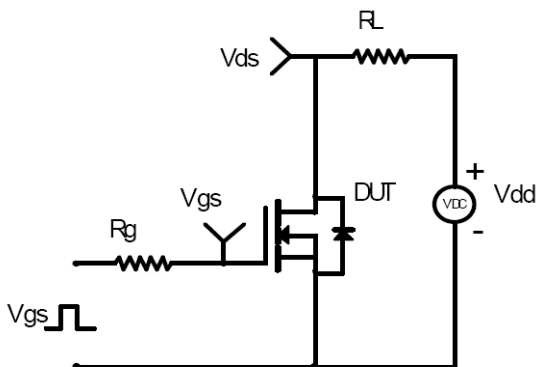
EAS Test Circuit:



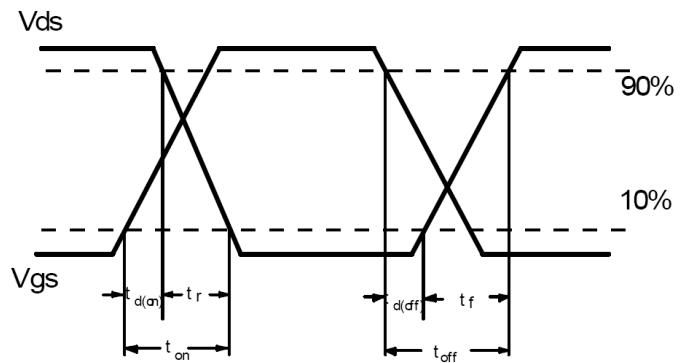
Gate charge test circuit:



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

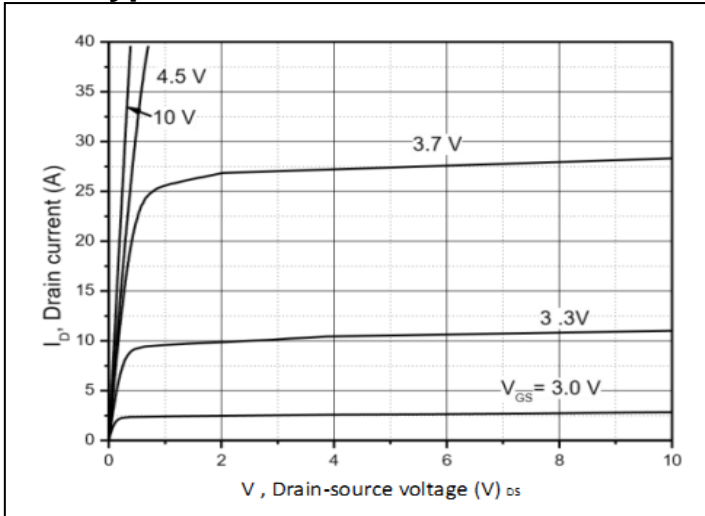


Figure 1: Typical Output Characteristics

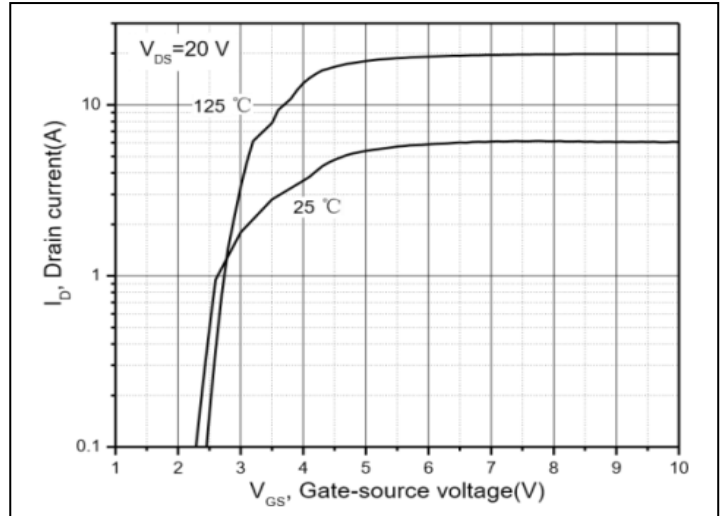


Figure 2: Typical Transfer Characteristics

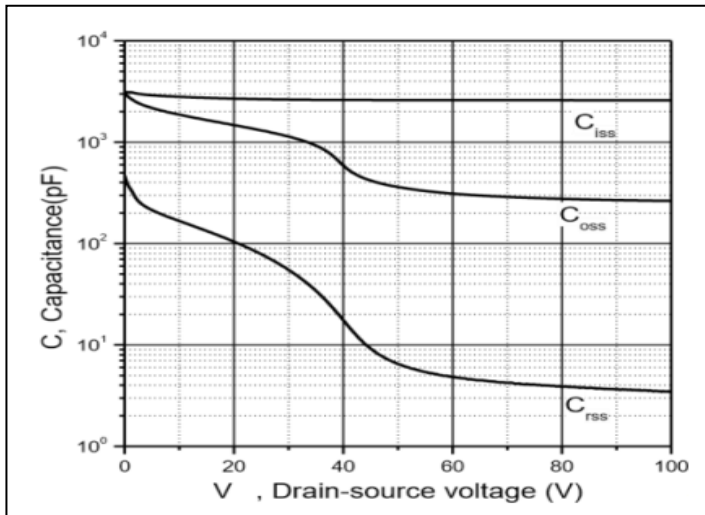


Figure 3: Capacitance

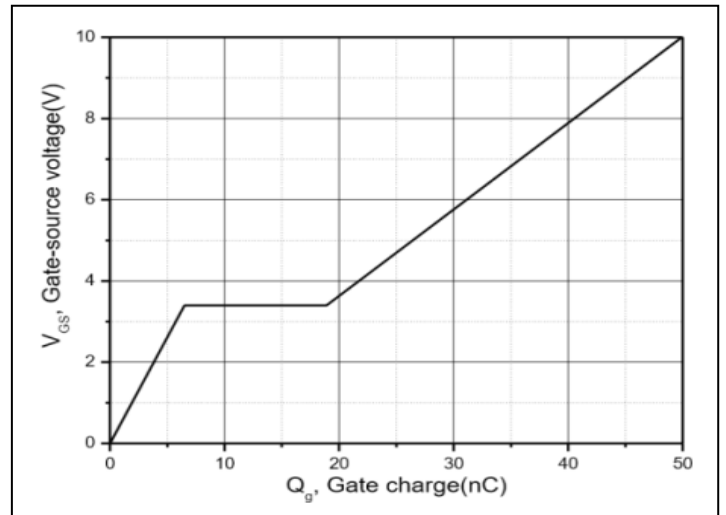


Figure 4: Gate Charge Characteristics

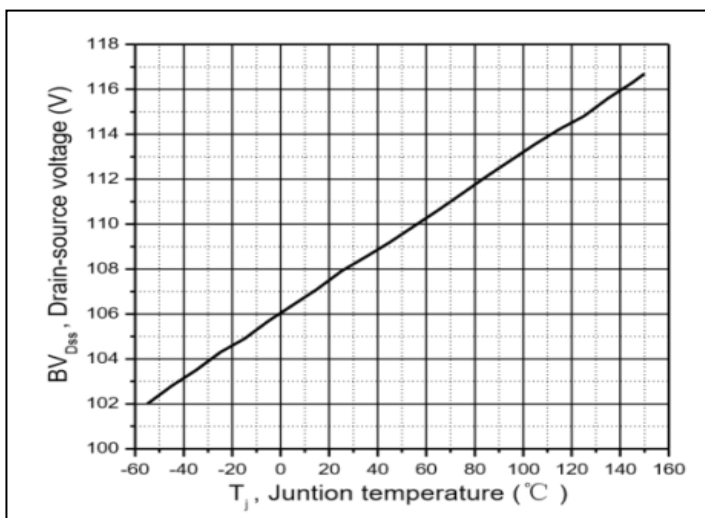


Figure 5: Drain-to-Source Breakdown Voltage vs. Junction Temperature

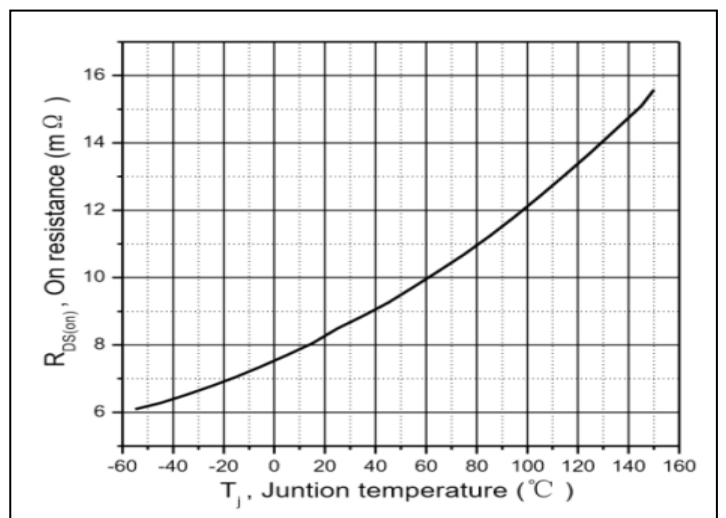
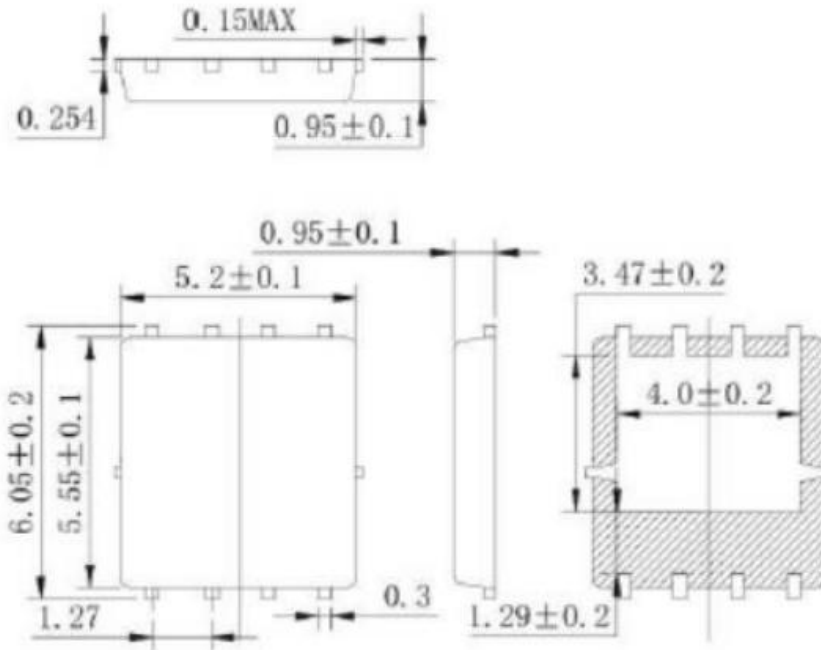


Figure 6: Normalized On-Resistance vs. Junction Temperature

Mechanical Data:

Unit : mm



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