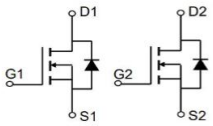
1 Description

These N-channel enhancement mode power mosfets used advanced trench technology design, provided excellent Rdson and low gate charge. Which accords with the RoHS standard.

CHIP-1 & CHIP-2



V_{DSS} = 60V

$R_{DS(on)\ (TYP)}$= 10.8mΩ

I_D（Silicon limit） = 45A

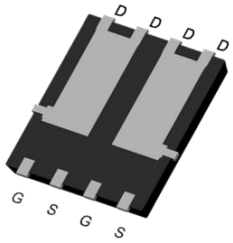
I_D（Package limit）= 38A

2 Features

- Low on resistance
- Low gate charge
- Fast switching
- Low reverse transfer capacitances
- 100% single pulse avalanche energy test
- 100% ΔV_{DS} test

3 Applications

- Power switching applications
- Inverter management system
- Electric tools
- Automotive electronics



DFN5*6-Dual

4 Electrical Characteristics

4.1 Absolute Maximum Ratings （Tc=25℃,unless otherwise noted）

Parameter		Symbol	Rating	Units
Drain-to-Source Voltage		V_{DSS}	60	V
Gate-to-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current	T_C=25℃（Silicon limit）	I_D	45	A
	T_C=25℃（Package limit）		38	A
	T_C=100℃		29	A
Pulsed Drain Current(1)		I_{DM}	152	A
Single Pulse Avalanche Energy(4)		E_{AS}	196	mJ
Power	T_C=25℃	P_{tot}	45	W
Junction Temperature Range		T_j	-55～150	℃
Storage Temperature Range		T_{stg}	-55～150	℃

4.2 Thermal Characteristics

Parameter	Symbol	Value		Units
		Typ	Max	
Thermal Resistance,Junction to Case-sink	R_{thJC}	--	2.8	℃/W

4.3 Electrical Characteristics (Tc=25℃, unless otherwise noted)

Parameter	Symbol	Test Condition	Value			Units
			Min	Typ	Max	
Off Characteristics						
Drain-to-Source Breakdown Voltage	BV_{DSS}	I_D=250μA,V_{GS}=0V	60	--	--	V
Drain-to-Source Leakage Current	I_{DSS}	V_{DS}=60V,V_{GS}=0V,T_C=25℃	--	--	1	μA
		V_{DS}=60V,V_{GS}=0V,T_C=125℃	--	--	100	μA
Gate-to-Source Leakage Current	I_{GSS}	V_{GS}=±20V,V_{DS}=0V	--	--	±100	nA
On Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS},I_D=250μA	2	3	4	V
Drain-to-Source on-state Resistance	$R_{DS(on)}$	V_{GS}=10V,I_D=30A	--	10.8	12	mΩ
Dynamic Characteristics	C_{iss}					
Input Capacitance	C_{oss}	V_{GS}=0V, V_{DS}=30V, f=1.0MHz	--	1796	--	pF
Output Capacitance			--	149	--	
Reverse Transfer Capacitance	C_{rss}		--	119	--	
Gate Resistance	R_G	V_{DD}=0V,V_{GS}=0V,F=1MHz	--	1.8	--	Ω
Switching Characteristics						
Turn-on Delay Time	$t_{d(on)}$	I_D=15A, V_{DD}=30V, V_{GS}=10V, V_{GEN}=25Ω	--	28	--	nS
Turn-on Rise Time	t_r		--	80	--	
Turn-off Delay Time	$t_{d(off)}$		--	78	--	
Turn-off Fall Time	t_f		--	67	--	
Total Gate Charge	Q_g	V_D=15A, V_{DD}=30V, $_{GS}$=10V	--	32.5	--	nC
Gate-to-Source Charge	Q_{gs}		--	12	--	
Gate-to-Drain(“Miller”) Charge	Q_{gd}		--	9	--	
Drain-Source Diode Characteristics						
Diode Forward Voltage[3]	V_{SD}	V_{GS}=0V,I_S=60A	--	--	1.3	V
Diode Forward Current	I_S		--	--	38	A
Reverse Recovery Time	t_{rr}	T_J=25℃,I_F=30A, di/dt=100A/μs, V_{GS}=0V	--	20	--	nS
Reverse Recovery charge	Q_{rr}		--	17	--	nC

Notes：

1: Repetitive rating, pulse width limited by maximum junction temperature.

2: Surface mounted on FR4 Board, t≤10sec.

3: Pulse width ≤ 300μs, duty cycle ≤ 2%.

4: EAS condition：L=0.5mH,I_D=20A,Start T_J=25℃.

5 Typical characteristics diagrams

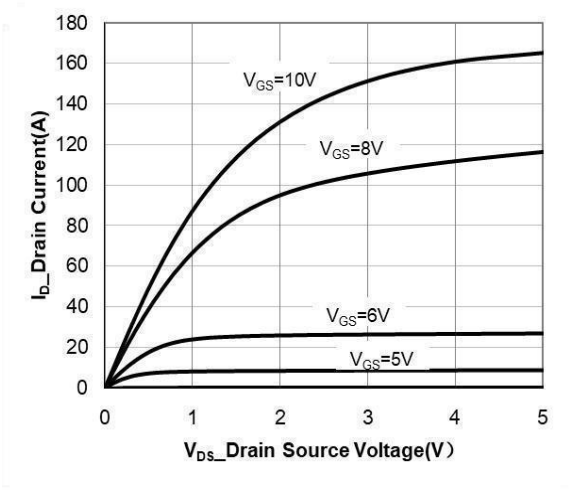


Figure 1 Output Characteristics

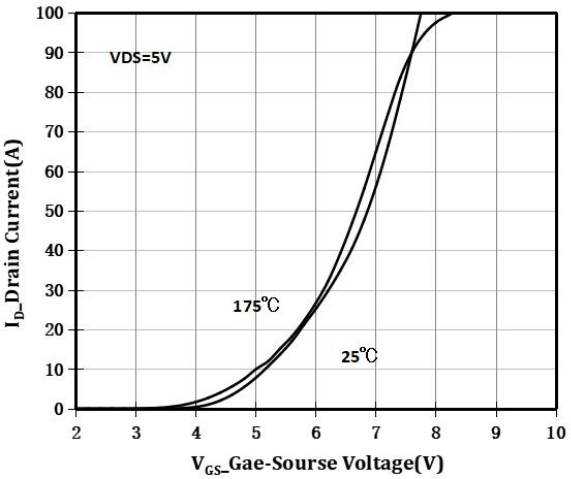


Figure 2 Transfer Characteristics

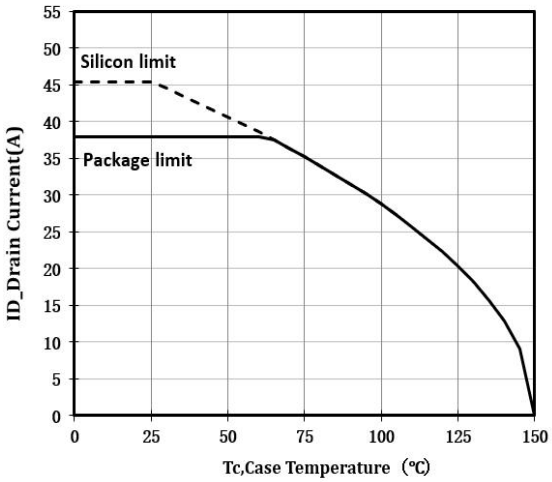


Figure 3 Current De-rating

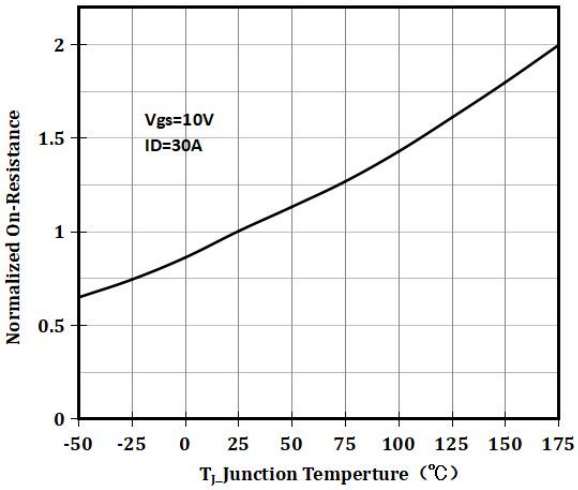


Figure 4 $R^{DS(ON)}$ –Junction Temperature

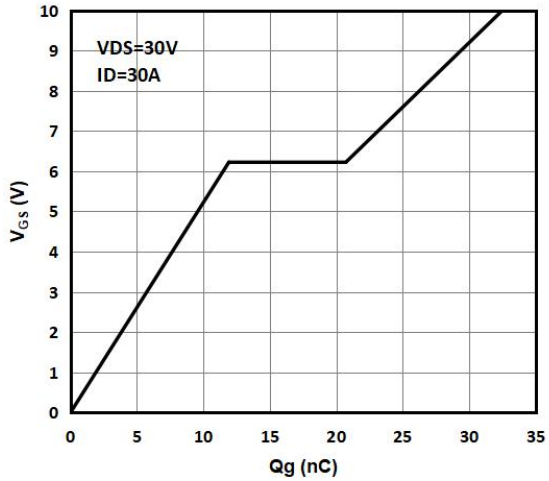


Figure 5 Gate Charge

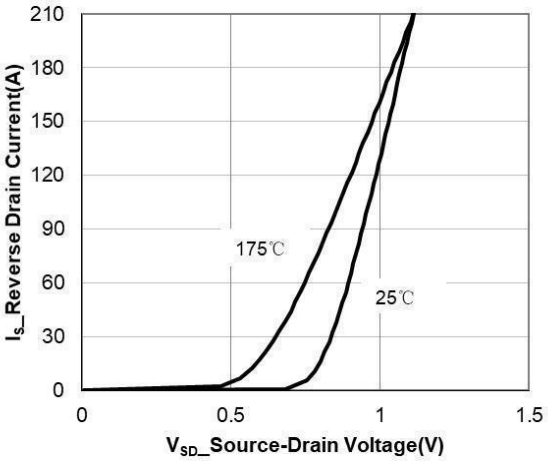


Figure 6 V_{SD}_ Source-Drain Diode forward

5 Typical characteristics diagrams(continues)

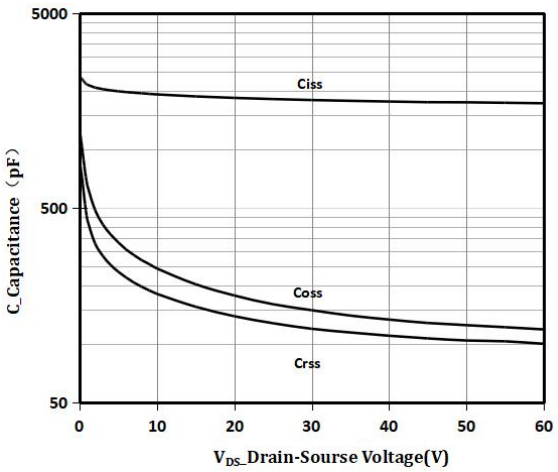


Figure 7 Capacitance Vs V_{DS}

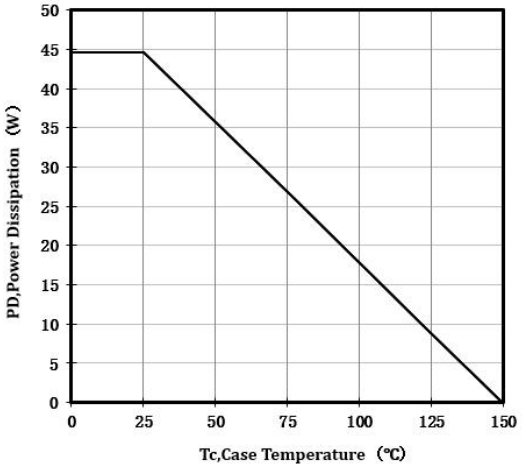


Figure 8 Power De-rating

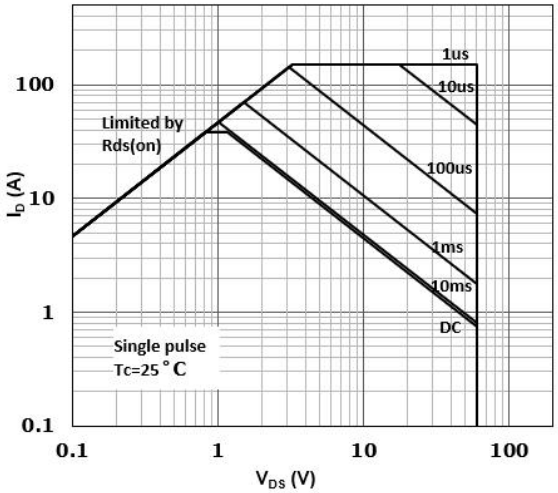


Figure 9 Safe Operation Area

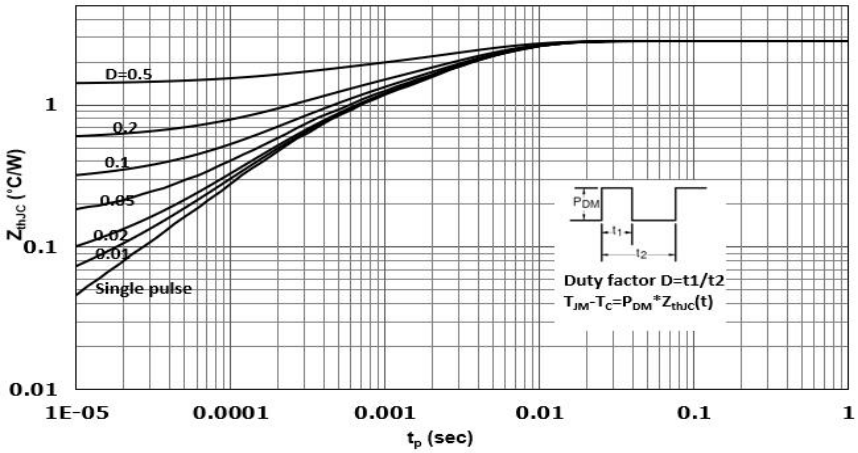
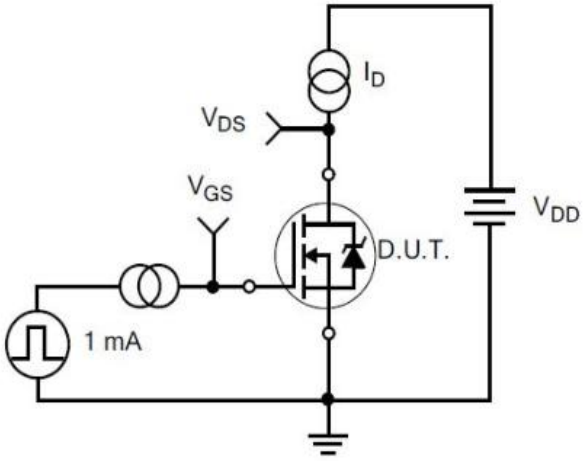
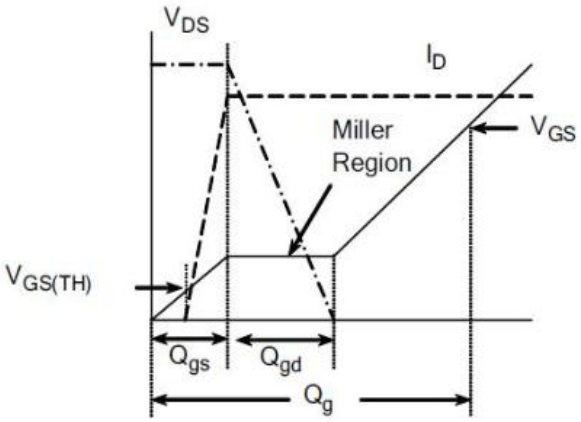


Figure 10 Normalized Maximum Transient Thermal Impedance

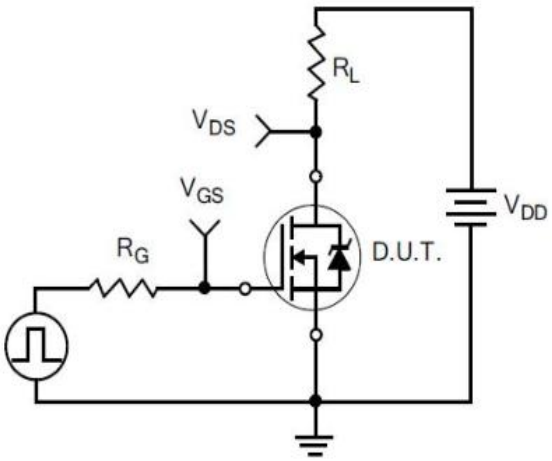
6 Typical Test Circuit and Waveform



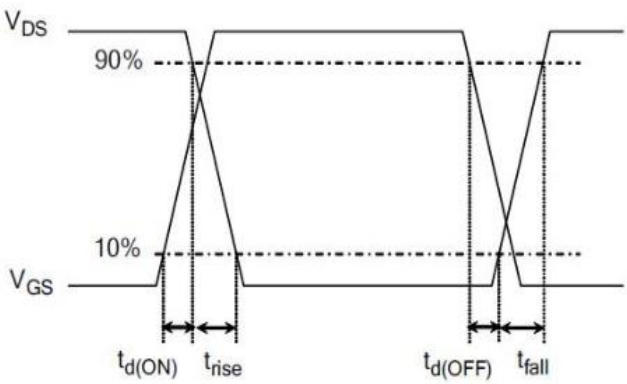
1) Gate Charge Test Circuit



2) . Gate Charge Waveform

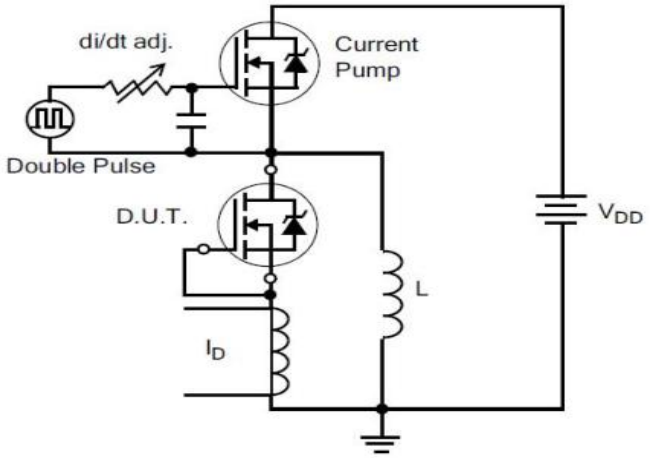


3) Resistive Switching Test Circuit

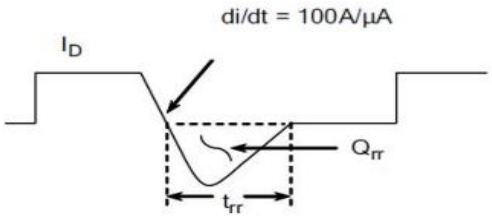


4) Resistive Switching Waveforms

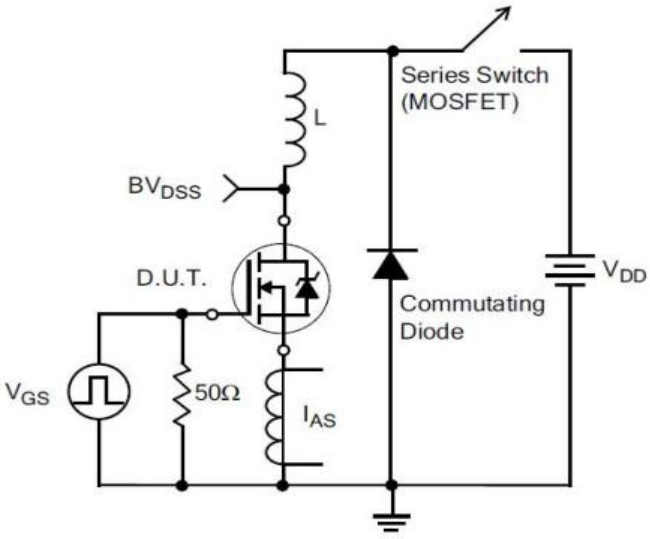
6 Typical Test Circuit and Waveform(continues)



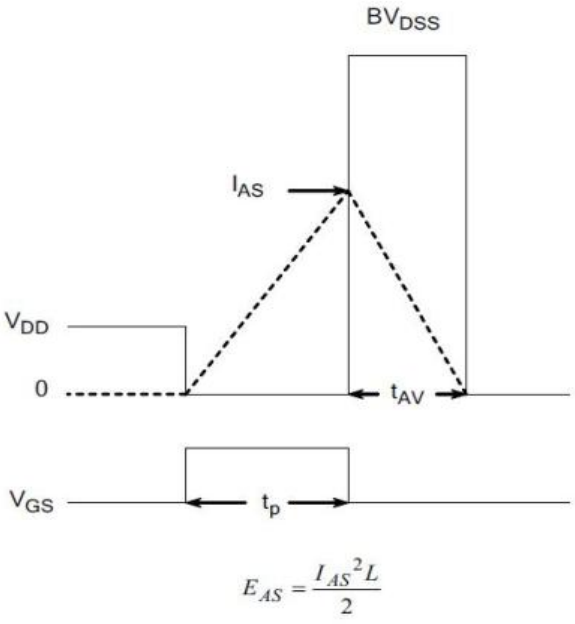
5) Diode Reverse Recovery Test Circuit



6) Diode Reverse Recovery Waveform



7) . Unclamped Inductive Switching Test Circuit

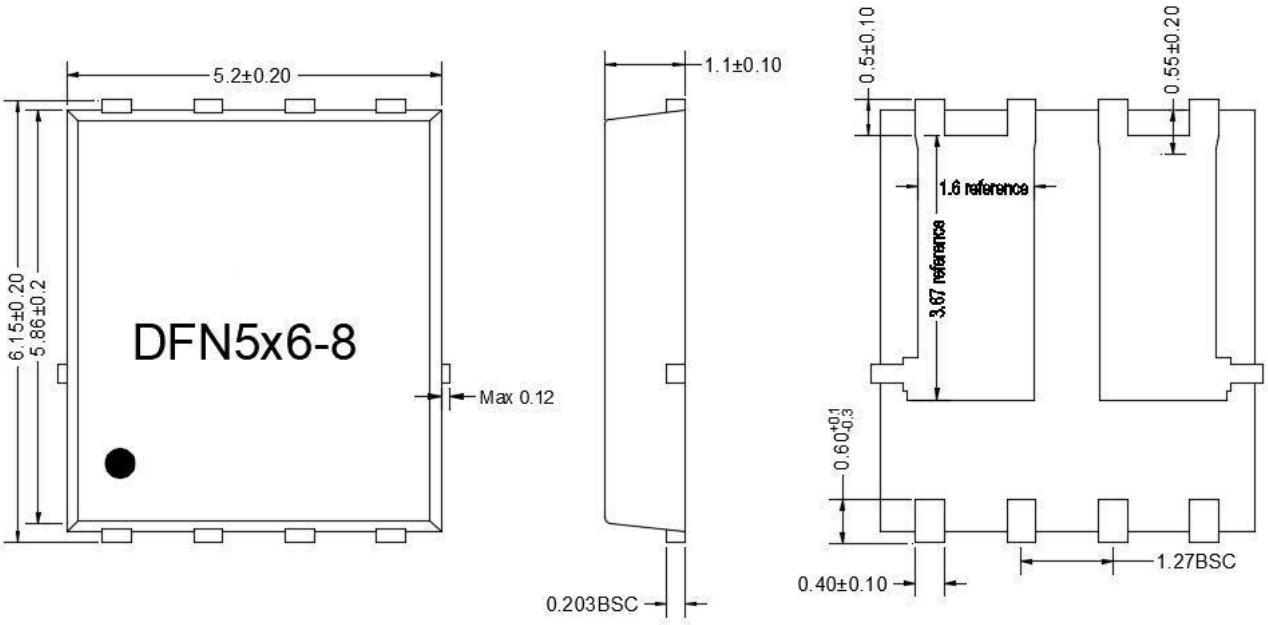


8) Unclamped Inductive Switching Waveforms

7 Product Specifications and Packaging Models

Product Model	Package Type	Mark Name	RoHS	Package	Quantity
SQJ264EP-T1_GE3-CN	DFN5*6-Dual	PD132N06N	Pb-free	Tape & Reel	3000/reel

8 Dimensions



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