

N-Channel Enhancement Mode MOSFET

1. Product Information

Features

- SGT Technology
- Excellent $R_{DS(ON)}$ and Low Gate Charge
- Lead free product is acquired

Applications

- PWM applications
- Load switch
- Power management

Quick reference

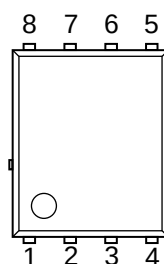
- $V_{DS} \geq 60V$
- $I_D \leq 150A$
- $R_{DS(ON)} \leq 2.3m\Omega$ @ $V_{GS} = 10V$ (Type: 1.9m Ω)
- $R_{DS(ON)} \leq 3.5m\Omega$ @ $V_{GS} = 4.5V$ (Type: 3.0m Ω)

Pin Description

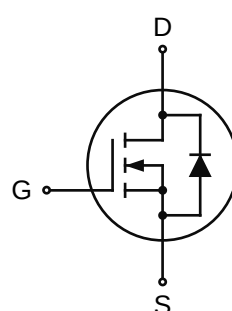
Pin	Description
1,2,3	Source(S)
4	Gate(G)
5,6,7,8	Drain(D)

Simplified Outline

Symbol



Top View
PDFN 5x6-8L



Package Marking and Ordering Information

Product Name	Package	Marking	Reel Size	Tape width	Quantity
KJ2R0N06G	PDFN5x6-8L	2R0N06	-	-	5000

2. Absolute Maximum Ratings (T_c=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current (T _a = 25°C)	I_D	150	A
Continuous Drain Current (T _a = 100°C)	I_D	100	A
Pulsed Drain Current ⁽¹⁾	I_{DM}	450	A
Singel Pulsed Avalanche Energy ⁽²⁾	E_{AS}	306	mJ
Power Dissipation	P_D	120	W
Thermal Resistance from Junction to Case	$R_{\theta JC}$	1.12	°C/W
Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55~ +150	°C

3. Electrical Characteristics (T_J=25°C, unless otherwise noted)

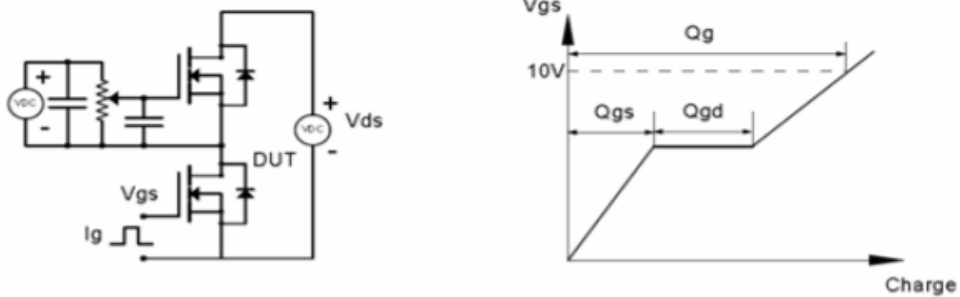
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D =250μA	60	-	-	V
Zero gate voltage drain current	I _{DSS}	V _{DS} =60V, V _{GS} = 0V	-	-	1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ± 20V, V _{DS} = 0V	-	-	±100	nA
Gate threshold voltage ⁽³⁾	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.5	2.0	3.0	V
Drain-source on-resistance ⁽³⁾	R _{DS(on)}	V _{GS} =10V, I _D =20A	-	1.9	2.3	mΩ
		V _{GS} =4.5V, I _D =10A	-	3.0	3.5	mΩ
Forward Threshold Voltage	g _{fs}	V _{DS} =5V, I _D =20A	-	75	-	S
Dynamic characteristics						
Input Capacitance	C _{iSS}	V _{DS} =25V, V _{GS} =0V, f =100KHz	-	6052	-	pF
Output Capacitance	C _{oSS}		-	1470	-	
Reverse Transfer Capacitance	C _{rSS}		-	185	-	
Switching characteristics						
Turn-on delay time	t _{d(on)}	V _{DD} =30V, I _D =25A, V _{GS} =10V, R _G =2Ω	-	21	-	ns
Turn-on rise time	t _r		-	25	-	
Turn-off delay time	t _{d(off)}		-	65	-	
Turn-off fall time	t _f		-	35	-	
Total Gate Charge	Q _g	V _D S=30V, I _D =25A, V _G S=10V	-	110	-	nC
Gate-Source Charge	Q _{gs}		-	20	-	
Gate-Drain Charge	Q _{gd}		-	21	-	
Reverse Recovery Chrage	Q _{rr}	I _F =20A,di/dt=100A/us		80		nC
Reverse Recovery Time	T _{rr}	I _F =20A,di/dt=100A/us		40		ns
Source-Drain Diode characteristics						
Diode Forward voltage ⁽³⁾	V _{DS}	V _{GS} =0V, I _S =10A	-	-	1.3	V
Diode Forward current ⁽⁴⁾	I _S		-	-	150	A

Notes:

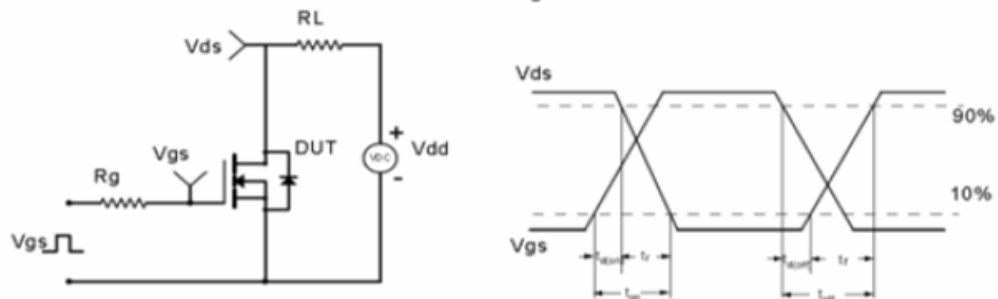
1. Repetitive Rating: pulse width limited by maximum junction temperature
2. EAS Condition: T_J=25°C, V_{DD}=48V, R_G=25 Ω, L=0.5Mh
3. Pulse Test: pulse width≤300μs, duty cycle≤2%
4. Surface Mounted on FR4 Board, t≤10 sec

4. Test Circuit & Waveform

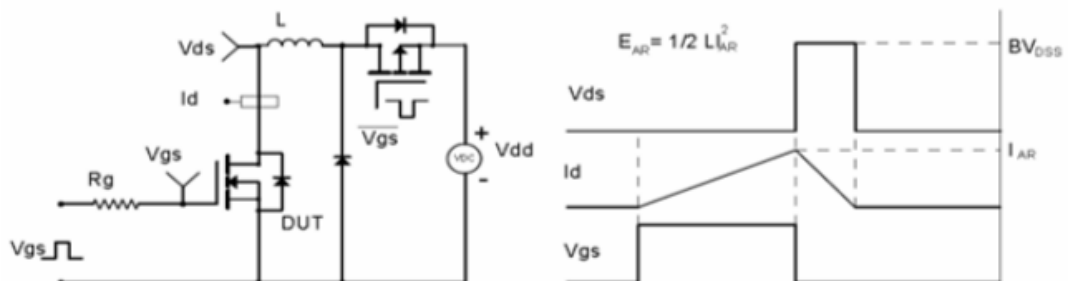
Gate Charge Test Circuit & Waveform



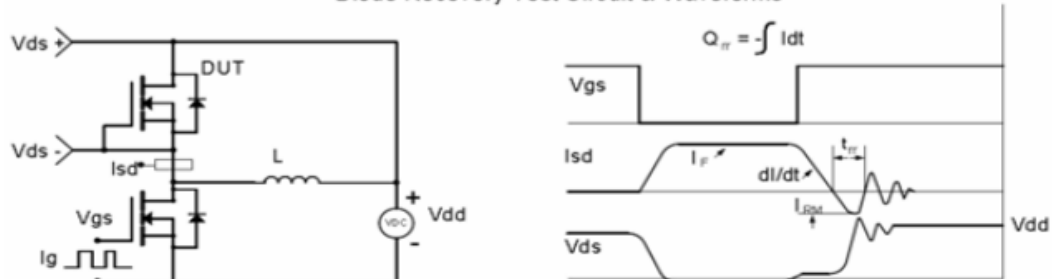
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

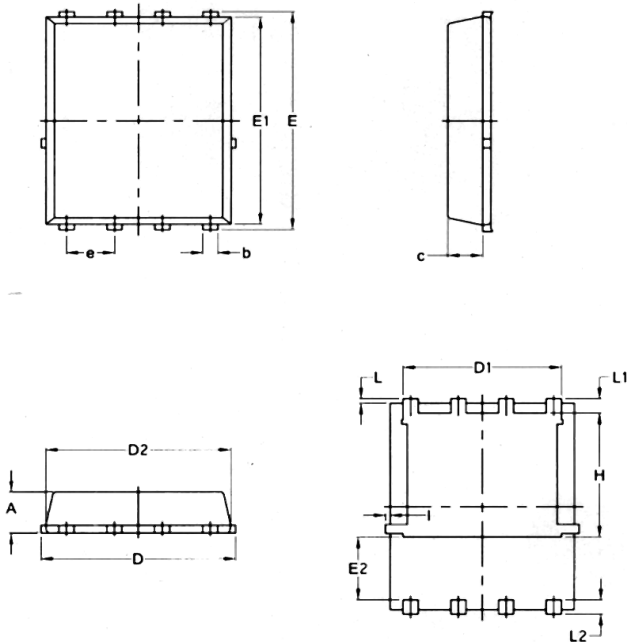


Diode Recovery Test Circuit & Waveforms



5. Package Mechanical Data

PDFN5x6-8L



SYMBOL	COMMON			
	MM		INCH	
	MIN.	MAX.	MIN.	MAX.
A	1.03	1.17	0.0406	0.0461
b	0.34	0.48	0.0134	0.0189
c	0.824	0.970	0.0324	0.0382
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