

## Features

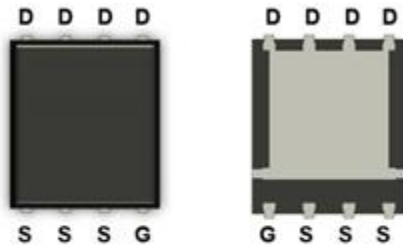
- Uses advanced SGT technology
- Extremely low  $R_{DS(on)}_{typ}=5.3m\Omega@V_{GS}=10V$
- Excellent gate charge x  $R_{DS(on)}$  product(FOM)

## Application

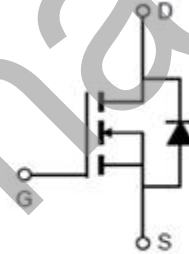
- Motor Drives
- SR (Synchronous rectification)
- DC/DC converter
- General purpose applications

## Product Summary

$V_{DS}$	80V
$R_{DS(on)}@V_{GS}=10V$	5.3mΩ
$I_D$	80A



DFN56



## Package Marking and Ordering Information

Type	Package	Marking	Reek Size	Tape Width	Qty
LR067N08S8	DFN5X6	LR067N08S8	330*16.5mm	12mm	5000

## Maximum Ratings

Parameter	Symbol	Value	Unit
Drain-source voltage	$V_{DS}$	80	V
Continuous drain current $T_C = 25^\circ C$ (Silicon limit) $T_C = 25^\circ C$ (Package limit) $T_C = 100^\circ C$ (Silicon limit)	$I_D$	110 80 77	A
Pulsed drain current $T_C = 25^\circ C, t_p$ limited by $T_{jmax}$	$I_{D\ pulse}$	400	
Avalanche energy, single pulse (L=0.5mH,Rg=25Ω)	$E_{AS}$	484	mJ
Gate-emitter voltage	$V_{GS}$	±20	V
Power dissipation $T_C = 25^\circ C$	$P_{tot}$	220	W
Operating junction and storage temperature	$T_j, T_{stg}$	-55~155	°C

**Thermal Resistance**

Parameter	Symbol	Value	Unit
Thermal resistance, junction – case. Max	$R_{thJC}$	0.76	°C/W
Thermal resistance, junction – ambient. Max	$R_{thJA}$	65	

**Electrical Characteristic, at T<sub>j</sub> = 25 °C, unless otherwise specified**

Parameter	Symbol	Test Condition	Value			Unit
			min.	typ.	max.	
<b>Static Characteristic</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=250\mu A$	80	-	-	V
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$ $T_j=25^\circ C$ $T_j=125^\circ C$	2.0 -	2.9	4.0 -	
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=80V, V_{GS}=0V$ $T_j=25^\circ C$ $T_j=125^\circ C$	- -	-	1 50	μA
Gate-source leakage current	$I_{GSS}$	$V_{GS}=20V, V_{DS}=0V$	-	-	100	nA
Drain-source on-state resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=50A,$ $T_j=25^\circ C$	-	5.3	6.7	mΩ
Transconductance	$g_{fs}$	$V_{DS}=5V, I_D=50A$	-	80	-	S

**Dynamic Characteristic**

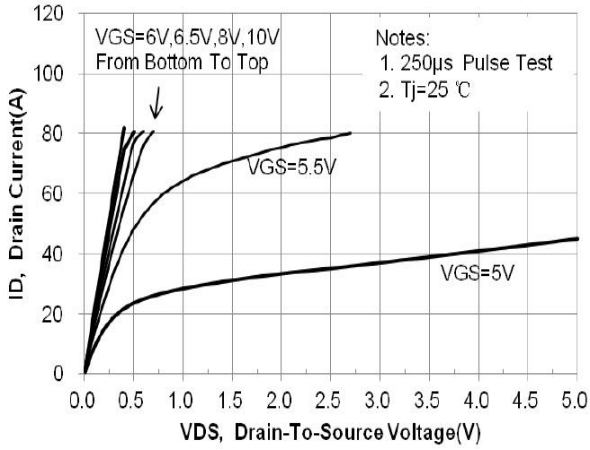
Input Capacitance	$C_{iss}$	$V_{GS}=0V, V_{DS}=40V,$ $f=1MHz$	-	3475	-	pF
Output Capacitance	$C_{oss}$		-	770	-	
Reverse Transfer Capacitance	$C_{rss}$		-	25	-	
Gate Total Charge	$Q_G$	$V_{GS}=10V, V_{DS}=40V,$ $I_D=25A$	-	56.6	-	nC
Gate-Source charge	$Q_{gs}$		-	21.4	-	
Gate-Drain charge	$Q_{gd}$		-	12.5	-	
Turn-on delay time	$t_{d(on)}$	$T_j=25^\circ C, V_{GS}=10V,$ $V_{DS}=40V, R_L=3\Omega$	-	17.3	-	ns
Rise time	$t_r$		-	33	-	
Turn-off delay time	$t_{d(off)}$		-	38.9	-	
Fall time	$t_f$		-	18.1	-	
Gate resistance	$R_G$	$V_{GS}=0V, V_{DS}=0V,$ $f=1MHz$	-	2	-	Ω

**Body Diode Characteristic**

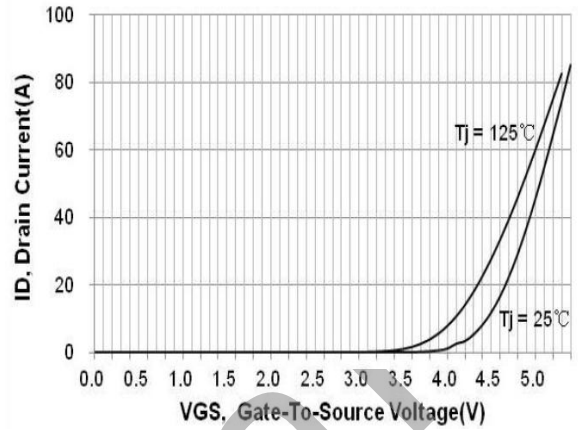
Body Diode Forward Voltage	$V_{SD}$	$V_{GS}=0V, I_{SD}=50A$	-	0.85	1.2	V
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=20A,$ $dI/dt=500A/\mu s$	-	68	-	ns
Body Diode Reverse Recovery Charge	$Q_{rr}$	$I_F=20A,$ $dI/dt=500A/\mu s$	-	66	-	nC

**Typical Performance Characteristics**

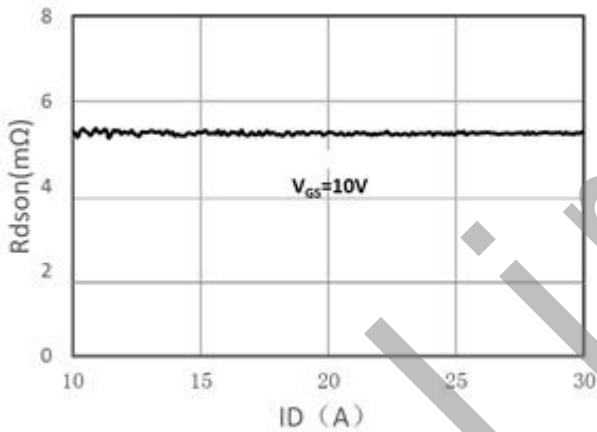
**Figure 1. Typ. Output Characteristics (Tj=25°C)**



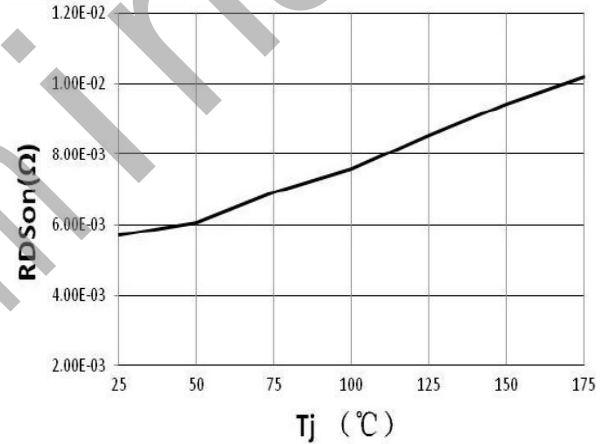
**Figure 2. Transfer Characteristics (Junction Temperature)**



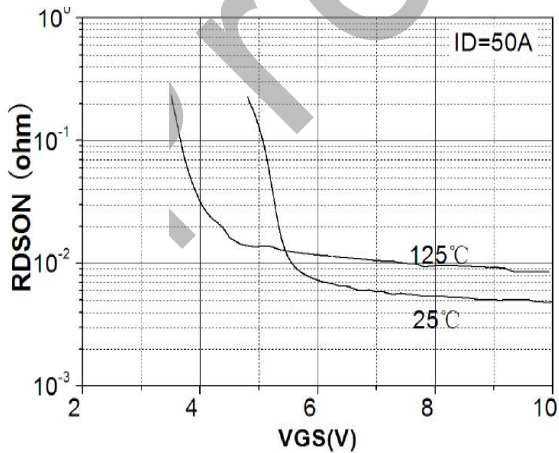
**Figure 3. On-Resistance vs. Drain Current and Gate Voltage Figure**



**Figure 4. On-Resistance vs. Junction Temperature**



**Figure 5. On-Resistance vs. Gate-Source Voltage (Junction Temperature)**



**Figure 6. Body-Diode Characteristics (Junction Temperature)**

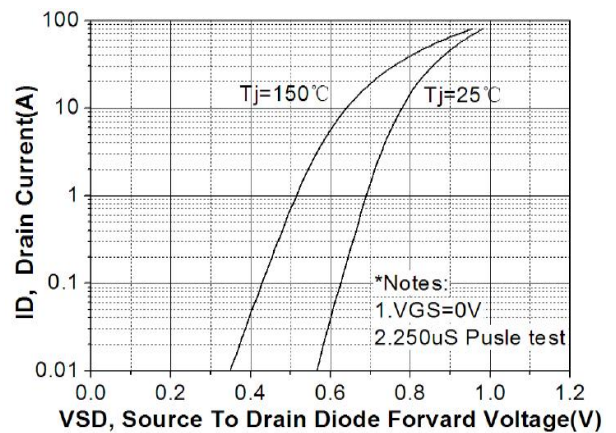


Figure 7. Gate-Charge Characteristics

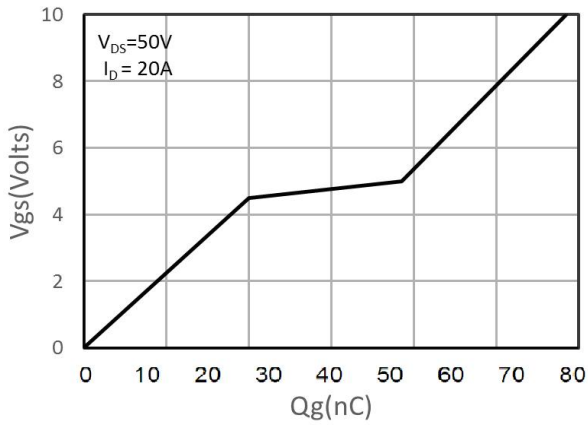


Figure 8. Drain Current Derating

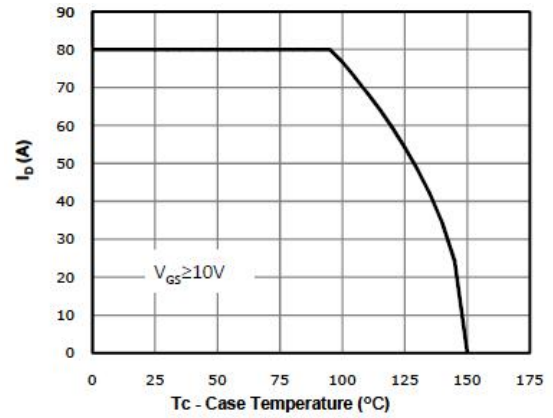


Figure 9. Capacitance Characteristics

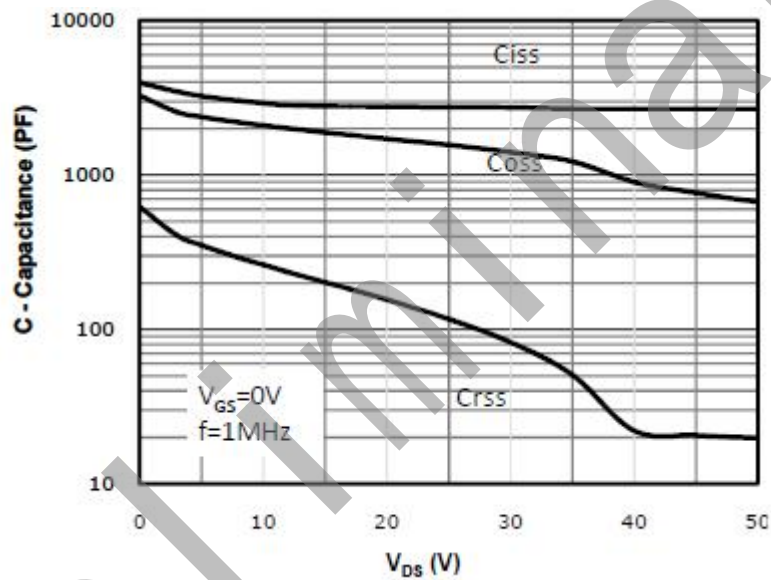
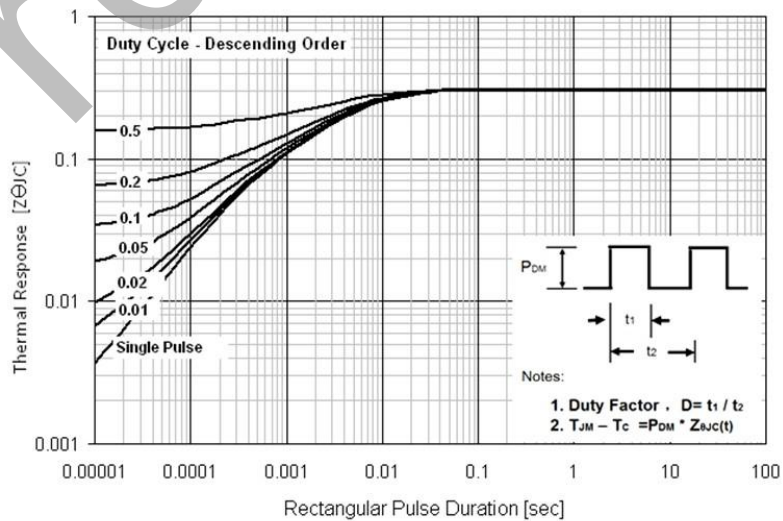
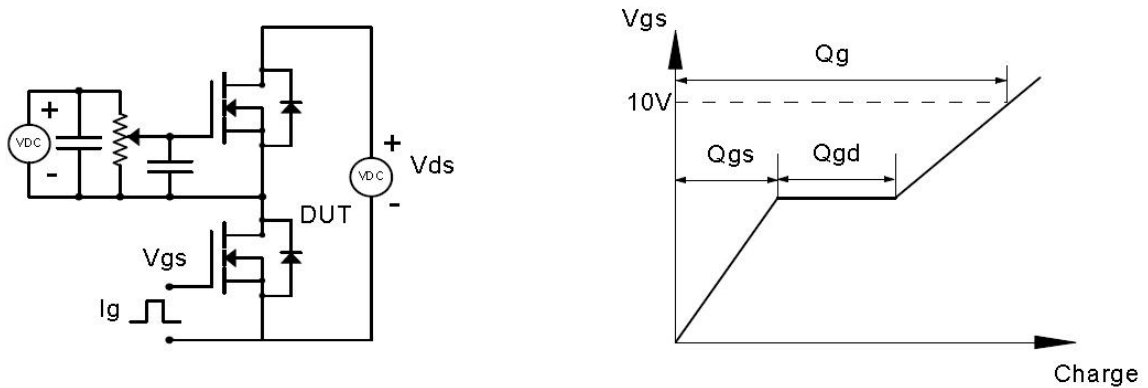


Figure 10: Normalized Maximum Transient Thermal Impedance ( $R_{thJC}$ )

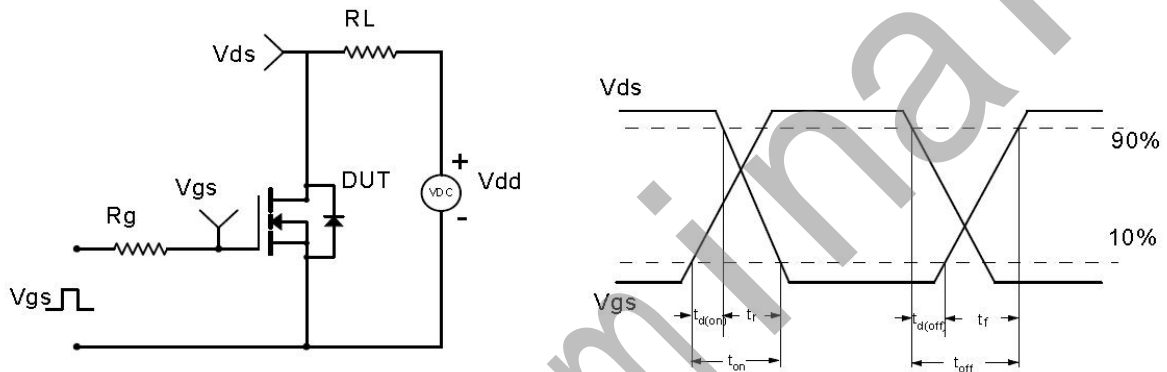


### Test Circuit & Waveform

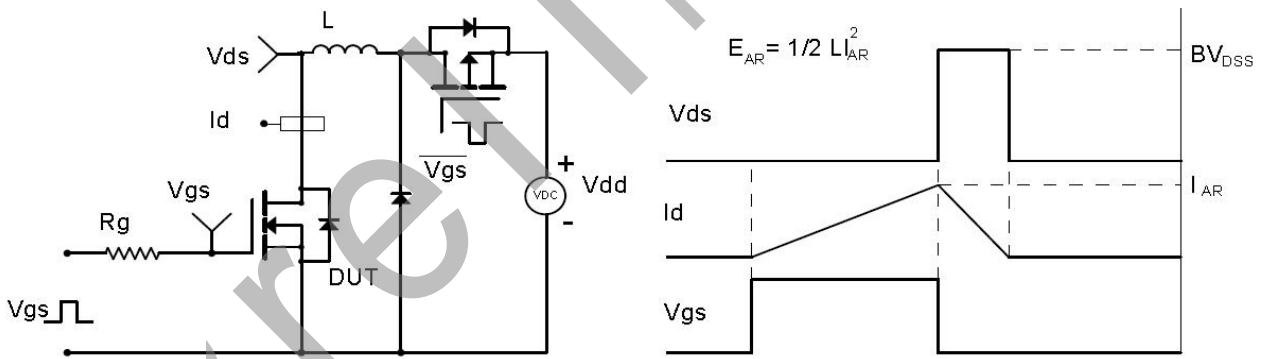
Gate Charge Test Circuit & Waveform



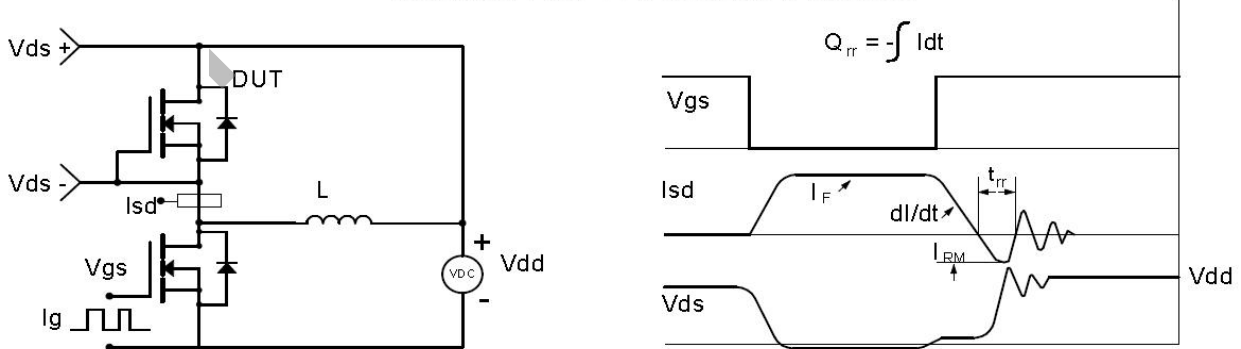
Resistive Switching Test Circuit & Waveforms



Unclamped Inductive Switching (UIS) Test Circuit & Waveforms

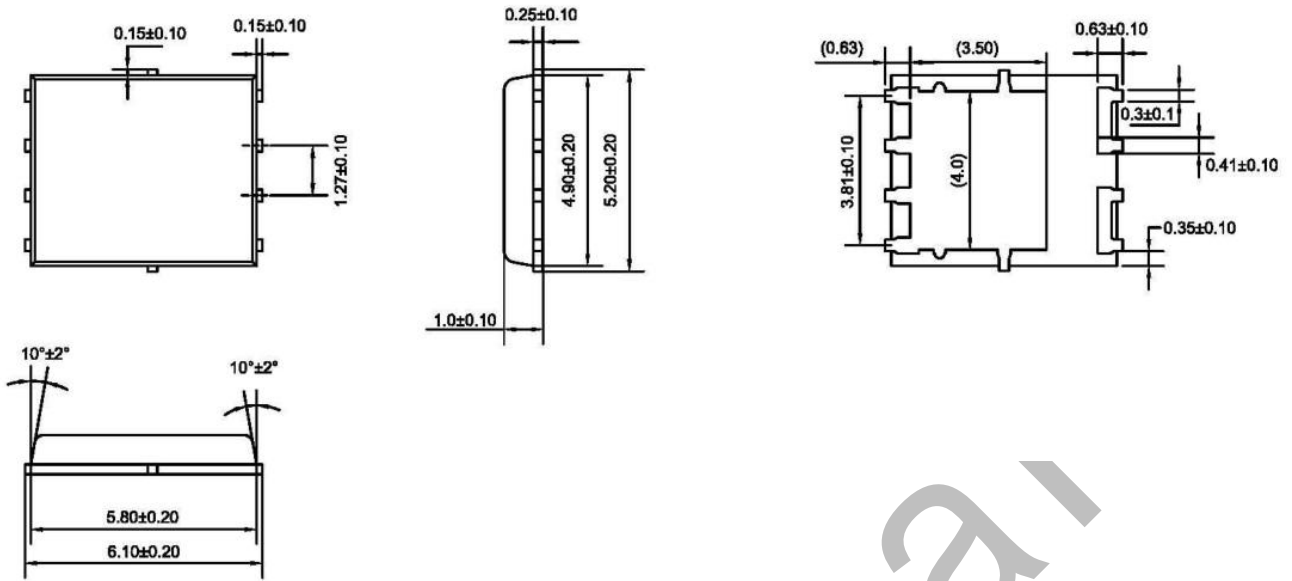


Diode Recovery Test Circuit & Waveforms



**Package Outline: DFN5X6**

Unit:mm



**Revision History**

Revision	Date	Major changes
0.0	2021/5/18	Preliminary Revision

preliminary