

S-LDN7407DT3WG

40V N-Channel Power MOSFET

1. FEATURES

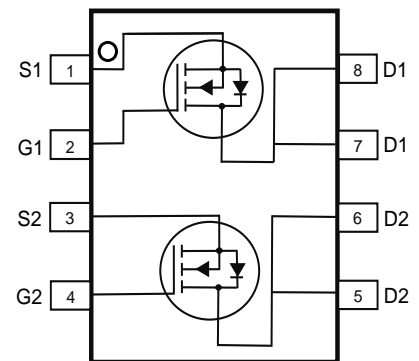
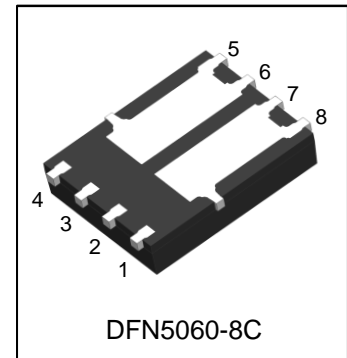
- Low thermal impedance.
- Fast switching.
- We declare that the material of product compliance with RoHS requirements and Halogen Free.
- S- prefix for automotive and other applications requiring unique site and control change requirements; AEC-Q101 qualified and PPAP capable.

2. APPLICATIONS

- Power Tools
- DC/DC conversion
- Motor Control

3. DEVICE MARKING AND RESISTOR VALUES

Device	Marking	Shipping
S-LDN7407DT3WG	LDN7407	5000/Tape&Reel



4. MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-to-Source Voltage		VDS	40	V
Gate-to-Source Voltage		VGS	± 20	V
Continuous Drain Current(Note 1)	TA=25°C	ID	12	A
	TA=100°C		7.5	
Pulsed Drain Current (Note 2)		TA=25°C	IDM	48
Continuous Drain Current		ID	49	A
			TC=100°C	
Pulsed Drain Current		TC=25°C	IDM	196
Avalanche Current		IAS	19.2	A
Avalanche Energy(L=0.1mH)		EAS	18.4	mJ
Power Dissipation(Note 1)	TA=25°C	PD	2.5	W
	TC=25°C		41	
Operating Junction and Storage Temperature Range		Tj/Tstg	-55~+150	°C

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Thermal Resistance,Junction-to-Ambient(Note 1)	RθJA	50	°C/W
Thermal Resistance,Junction-to-Case	RθJC	3	

Note 1.Surface mounted on 1.5 x 1.5 FR4 board using 1 sq in pad, 2 oz Cu.

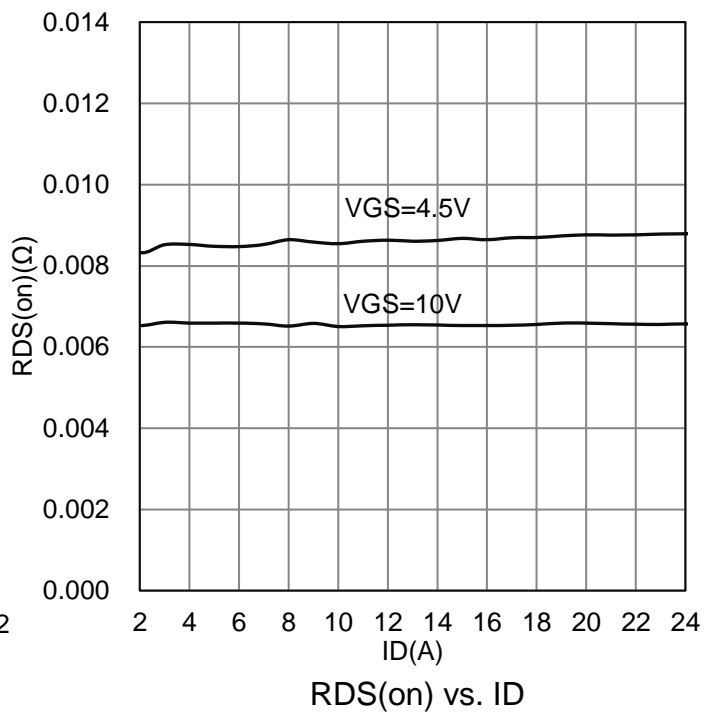
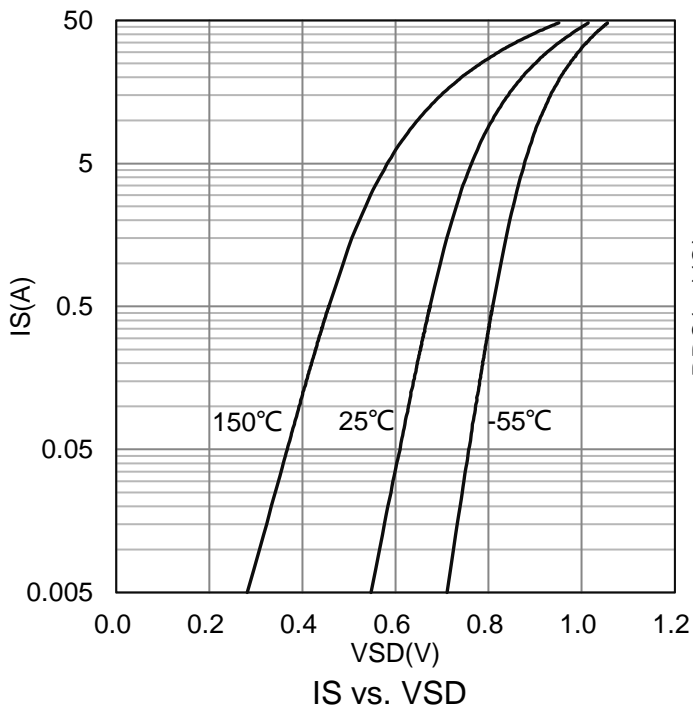
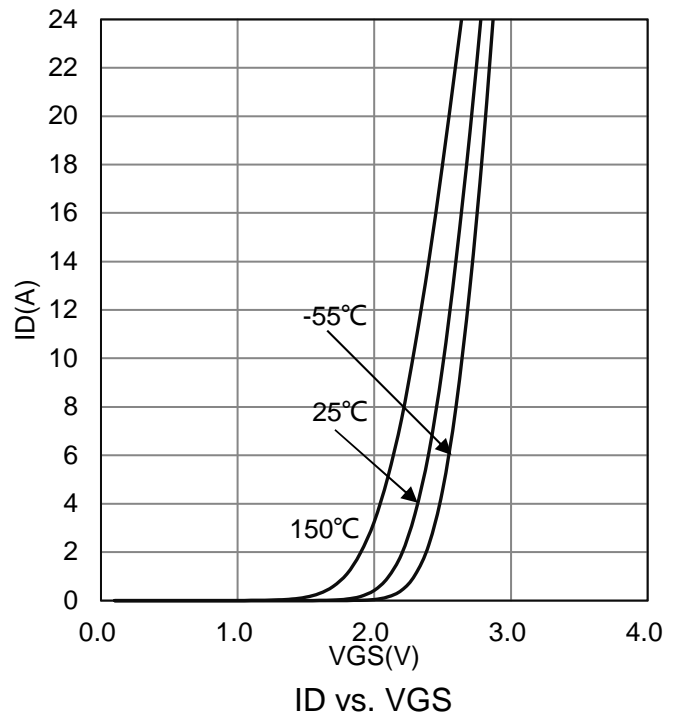
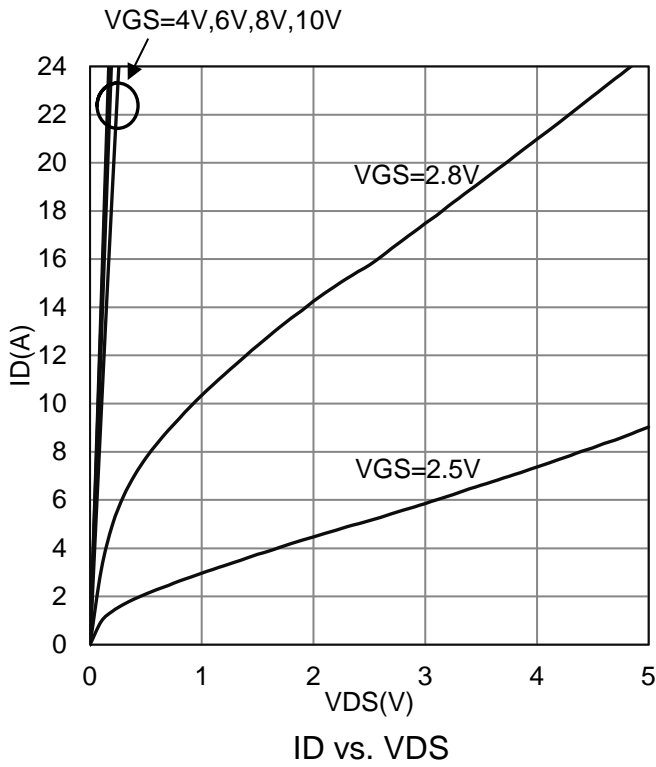
2.Pulse width limited by maximum junction temperature.

6. ELECTRICAL CHARACTERISTICS

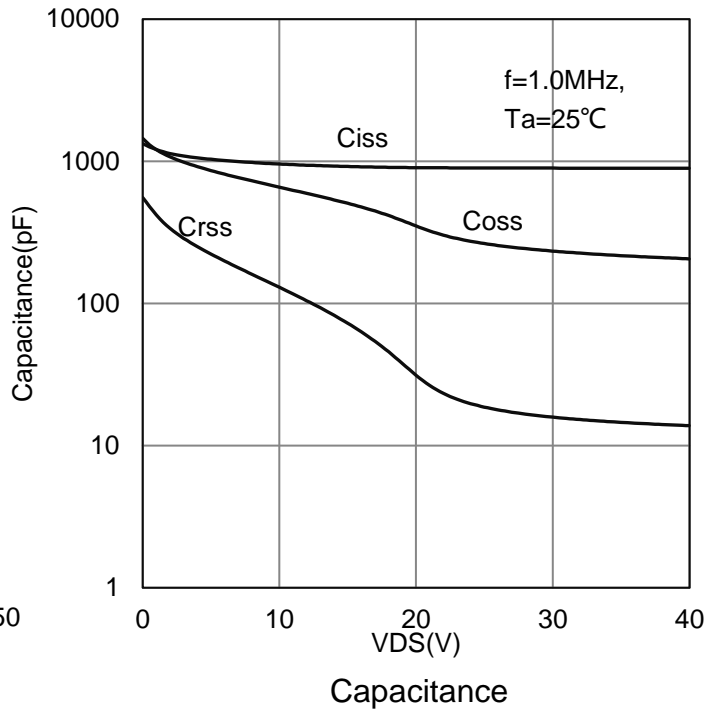
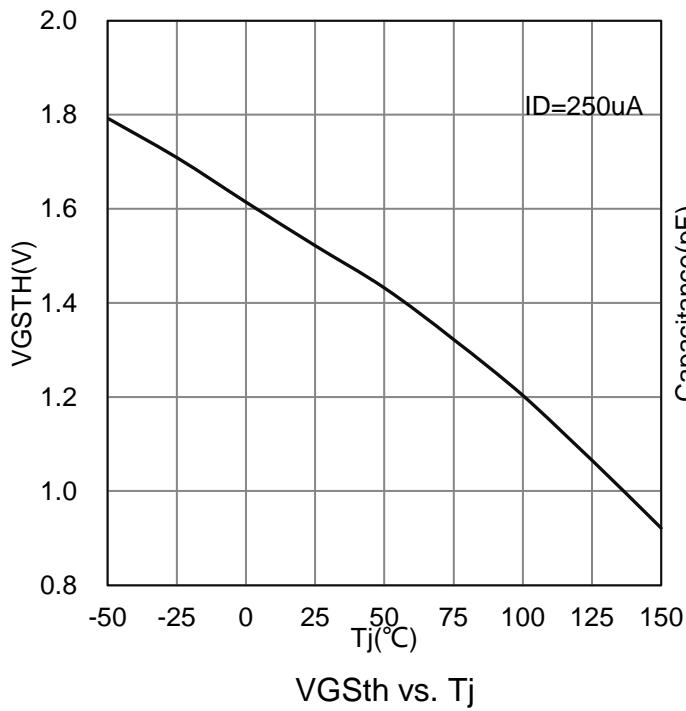
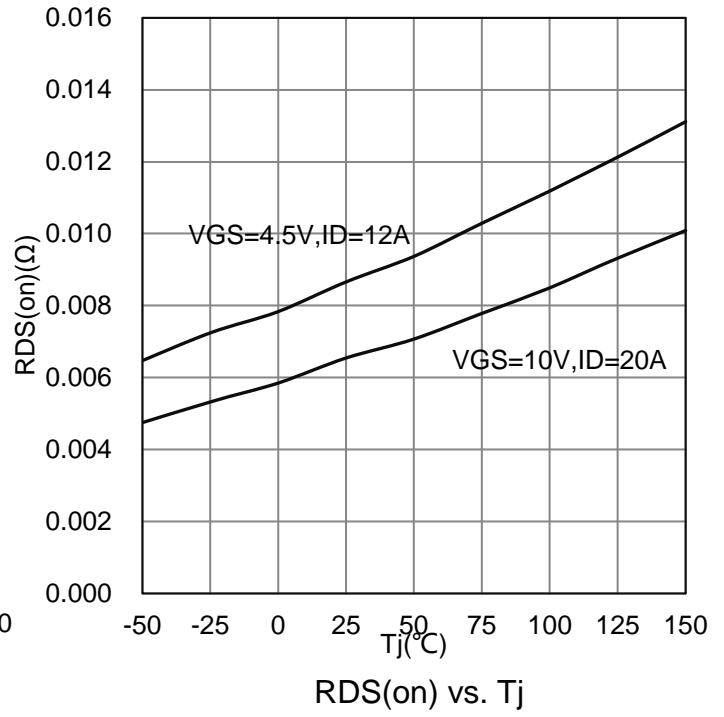
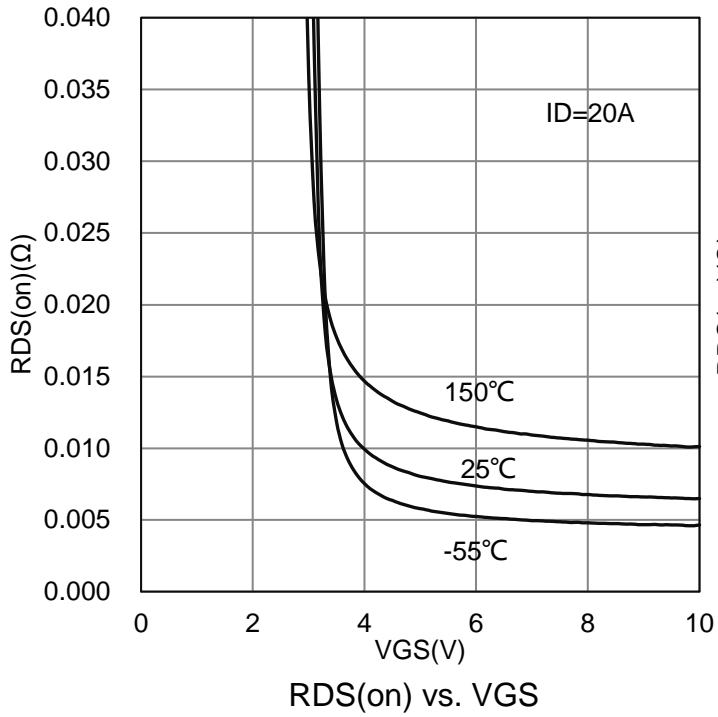
Characteristic	Symbol	Min.	Typ.	Max.	Unit	
Static						
Drain to Source Breakdown Voltage (VGS = 0 V, ID = 250 μ A)	BVDSS	40	-	-	V	
Gate-Source Threshold Voltage (VDS = VGS, ID = 250 μ A)	VGS(th)	1	-	2.5	V	
Gate-Body Leakage (VDS = 0 V, VGS = \pm 20 V)	IGSS	-	-	\pm 100	nA	
Zero Gate Voltage Drain Current (VDS = 40 V, VGS = 0 V)	IDSS	-	-	1	μ A	
Drain-Source On-Resistance(Note 3) (VGS = 10 V, ID = 20 A) (VGS = 4.5 V, ID = 12 A)	RDS(on)	-	7.1 9.3	7.5 11.1	m Ω	
Dynamic						
Input Capacitance	(VDS = 20 V, VGS = 0 V, f = 1MHz)	Ciss	-	910	1365	pF
Output Capacitance		Coss	-	353	530	
Reverse Transfer Capacitance		Crss	-	33	50	
Total Gate Charge	(VDS = 20 V, VGS = 10 V, ID = 20 A)	Qg	-	19	29	nC
Gate-Source Charge		Qgs	-	2.1	3.2	
Gate-Drain Charge		Qgd	-	6	9	
Turn-On Delay Time	(VDS = 20 V, ID = 10 A, VGEN = 10 V, RGEN = 6 Ω)	td(on)	-	7.6	-	ns
Rise Time		tr	-	12	-	
Turn-Off Delay Time		td(off)	-	36	-	
Fall Time		tf	-	18	-	
Diode characteristics						
Continuous Current TA = 25°C	IS	-	-	12	A	
Plused Current TA = 25°C	ISM	-	-	48	A	
Diode Forward Voltage (IS = 20 A, VGS = 0 V)	VSD	-	0.8	1.3	V	

3.Pulse test: PW \leq 300 μ s duty cycle \leq 2%.

7. ELECTRICAL CHARACTERISTICS CURVES

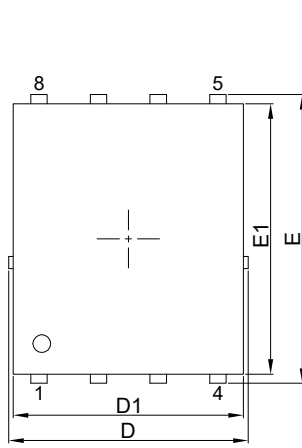


7. ELECTRICAL CHARACTERISTICS CURVES(Con.)

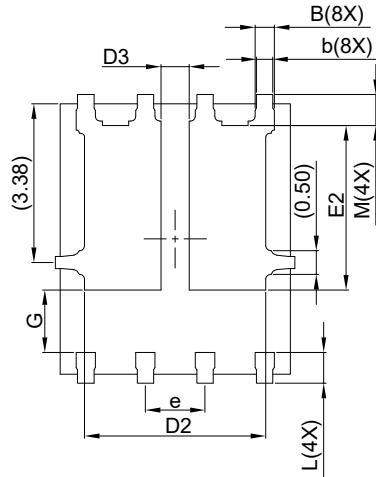


8.OUTLINE AND DIMENSIONS

DFN5060-8C(T1.00)

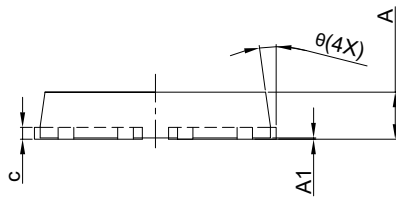


TOP VIEW



BOTTOM VIEW

symbol	dimensions in mm		
	MIN	NOM	MAX
A	0.90	1.00	1.10
A1	0.00	—	0.05
B	0.36	0.41	0.46
b	0.30	0.35	0.40
c	0.254 REF		
D	4.95	5.10	5.25
D1	4.80	4.90	5.00
D2	3.76	3.86	3.96
D3	0.55	0.60	0.65
E	6.00	6.15	6.30
E1	5.66	5.76	5.86
E2	3.40	3.50	3.60
G	1.34 BSC		
e	1.27 BSC		
L	0.56	0.66	0.76
M	0.56	0.66	0.76
θ	0°	—	12°

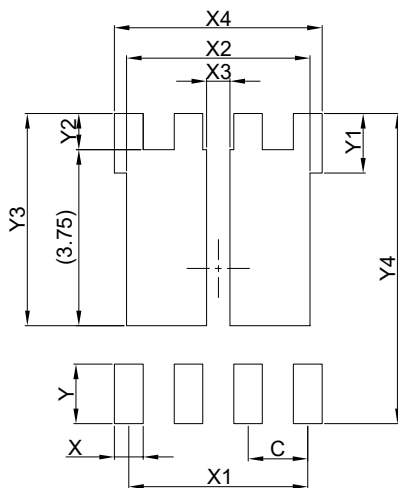


SIDE VIEW

GENERAL NOTES

1. Top package surface finish Ra Max0.4um
2. Bottom package surface finish Ra Max0.4um
3. Side package surface finish Ra Max0.4um
4. Protrusion or Gate Burrs shall not exceed 0.05mm per side.
5. Offcenter Max0.038mm; Mismatch Max 0.038mm.

9.SOLDERING FOOTPRINT



DFN5060-8C	
DIM	(mm)
C	1.27
X	0.61
X1	3.81
X2	3.91
X3	0.50
X4	4.42
Y	1.27
Y1	1.27
Y2	0.77
Y3	4.52
Y4	6.61

DISCLAIMER

- Curve guarantee in the specification. The curve of test items with electric parameter is used as quality guarantee. The curve of test items without electric parameter is used as reference only.
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