

Dual N-Channel 30-V (D-S) MOSFET

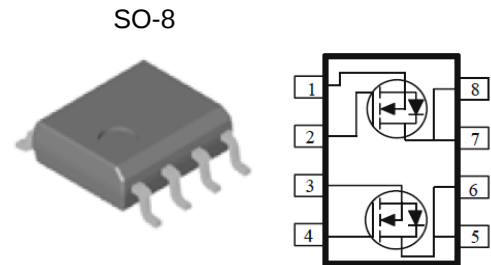
Key Features:

- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (m Ω)	I_D (A)
30	12 @ $V_{GS} = 10V$	8
	18 @ $V_{GS} = 4.5V$	7

Typical Applications:

- DC/DC Conversion
- Power Routing
- Motor Drives



ORDERING INFORMATION

Device	Marking	Shipping
LDN4340T1G	4340	4000/Tape&Reel

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Units
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current ^a	$T_A = 25^\circ\text{C}$	I_D	12	A
	$T_A = 70^\circ\text{C}$		9	
Pulsed Drain Current ^b		I_{DM}	50	
Continuous Source Current (Diode Conduction) ^a		I_S	2.9	A
Power Dissipation ^a	$T_A = 25^\circ\text{C}$	P_D	2.1	W
	$T_A = 70^\circ\text{C}$		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Maximum	Units
Maximum Junction-to-Ambient ^a	t ≤ 10 sec	R _{θJA}	62.5	°C/W
	Steady State		110	

Notes

- Surface Mounted on 1" x 1" FR4 Board.
- Pulse width limited by maximum junction temperature

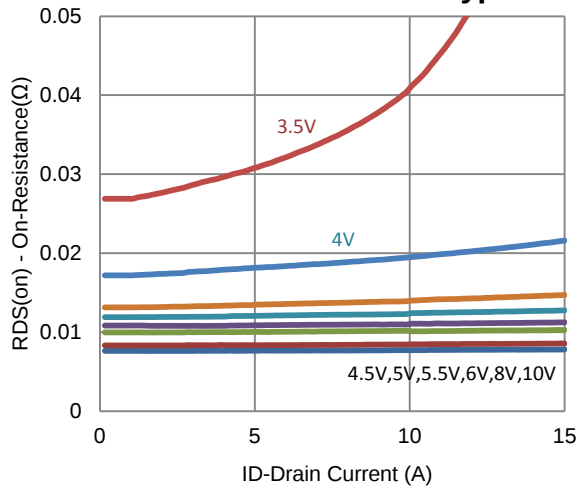
Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 uA	1			V
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V			1	uA
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 55°C			10	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	20			A
Drain-Source On-Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 10 A		8	12	mΩ
		V _{GS} = 4.5 V, I _D = 8 A		12	18	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 10 A		8		S
Diode Forward Voltage ^a	V _{SD}	I _S = 1.5 A, V _{GS} = 0 V		0.76		V
Dynamic ^b						
Total Gate Charge	Q _g	V _{DS} = 15 V, V _{GS} = 4.5 V, I _D = 10 A		10		nC
Gate-Source Charge	Q _{gs}			3.9		
Gate-Drain Charge	Q _{gd}			4.0		
Turn-On Delay Time	t _{d(on)}	V _{DS} = 15 V, R _L = 1.5 Ω, I _D = 10 A, V _{GEN} = 10 V, R _{GEN} = 6 Ω		7		ns
Rise Time	t _r			6		
Turn-Off Delay Time	t _{d(off)}			30		
Fall Time	t _f			9		
Input Capacitance	C _{iss}	V _{DS} = 15 V, V _{GS} = 0 V, f = 1 Mhz		1379		pF
Output Capacitance	C _{oss}			156		
Reverse Transfer Capacitance	C _{rss}			116		

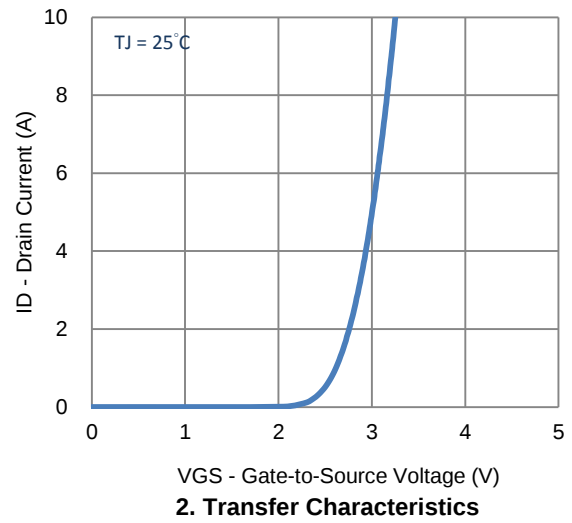
Notes

- Pulse test: PW ≤ 300us duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.

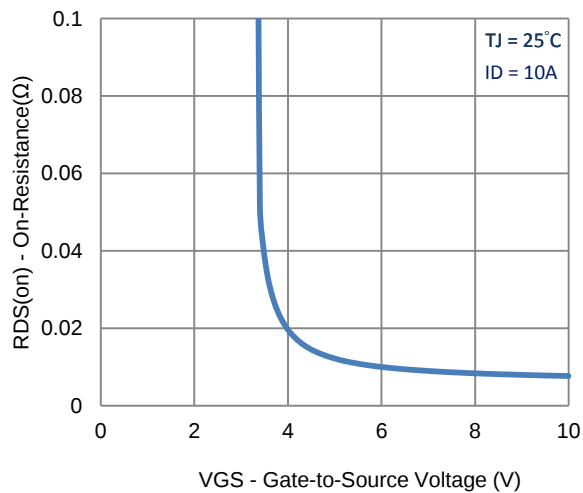
Typical Electrical Characteristics



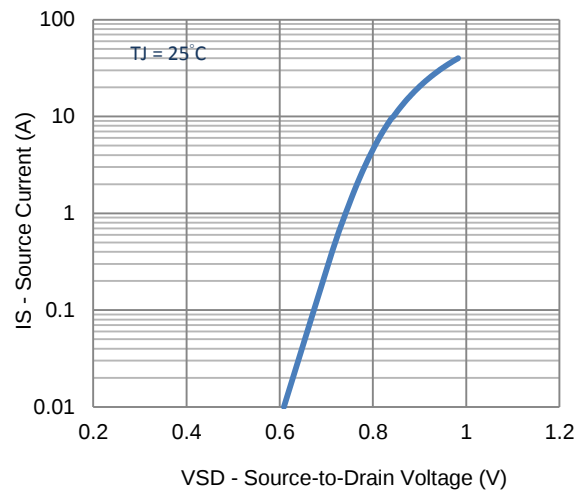
1. On-Resistance vs. Drain Current



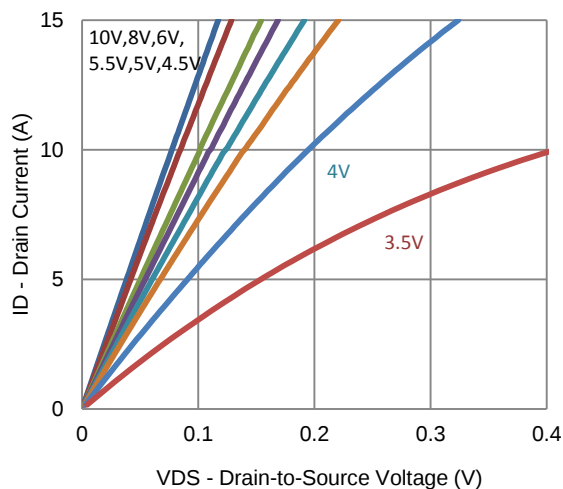
2. Transfer Characteristics



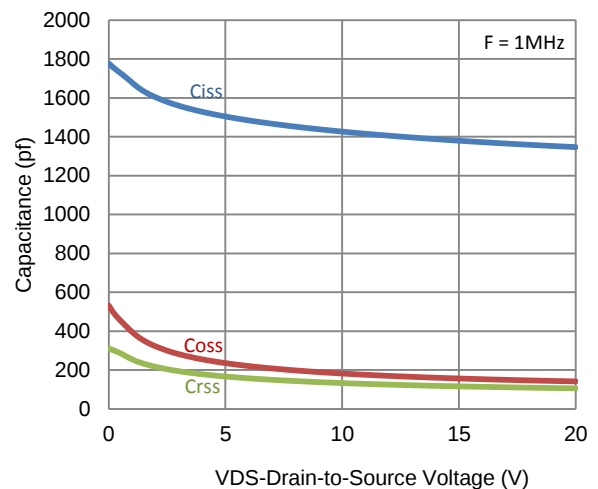
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

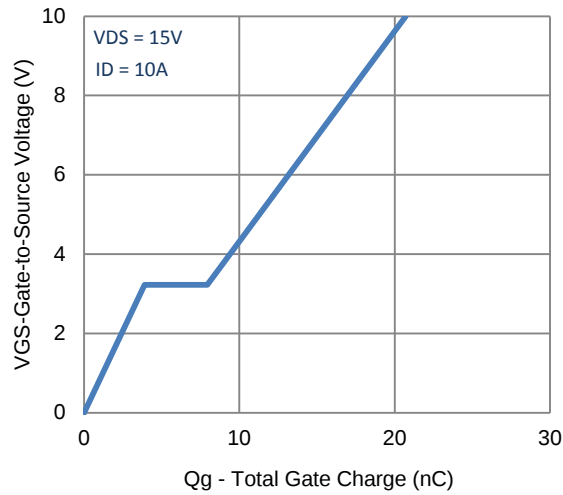


5. Output Characteristics

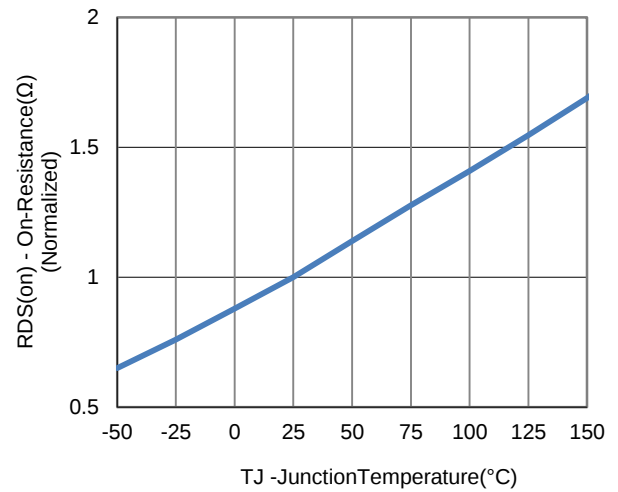


6. Capacitance

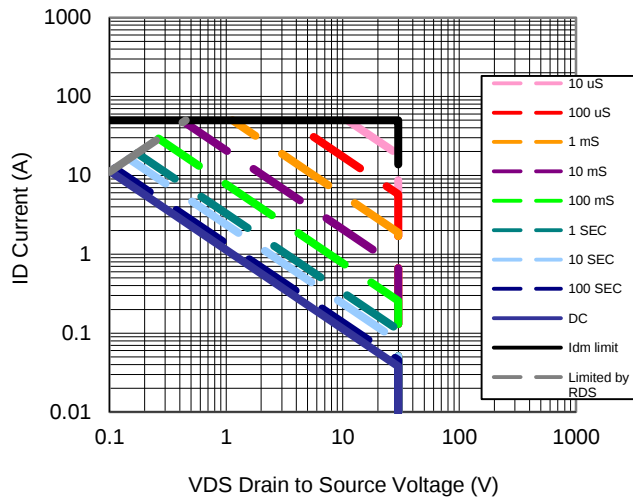
Typical Electrical Characteristics



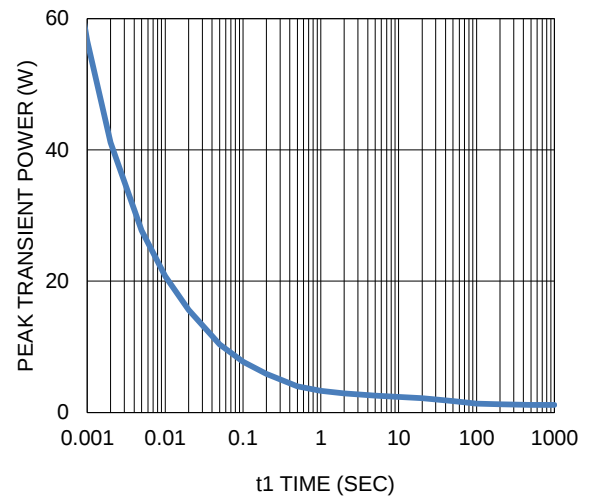
7. Gate Charge



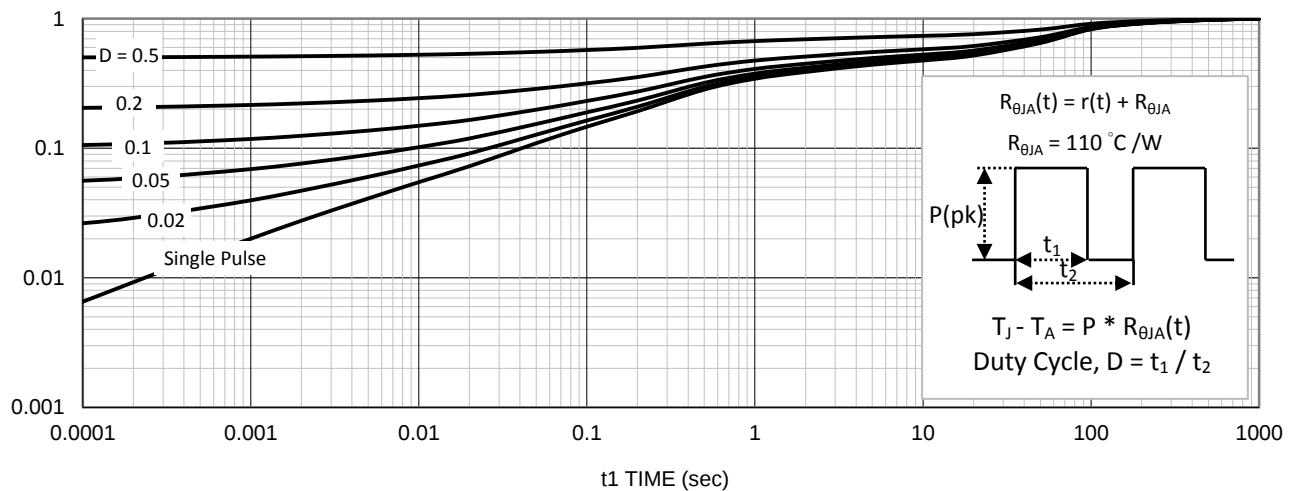
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area



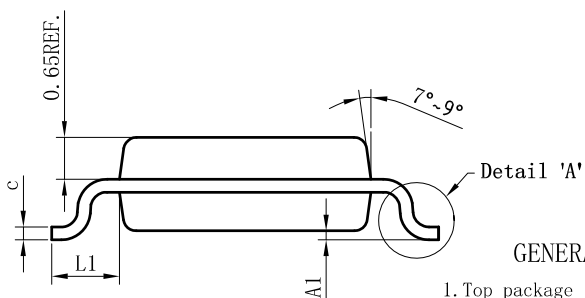
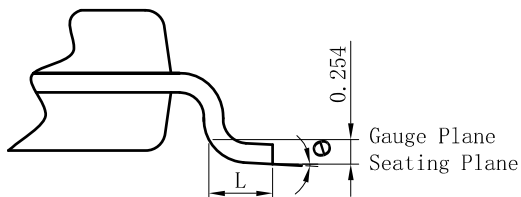
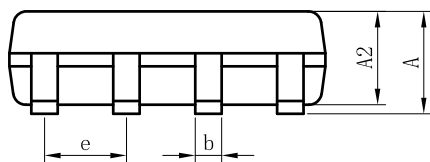
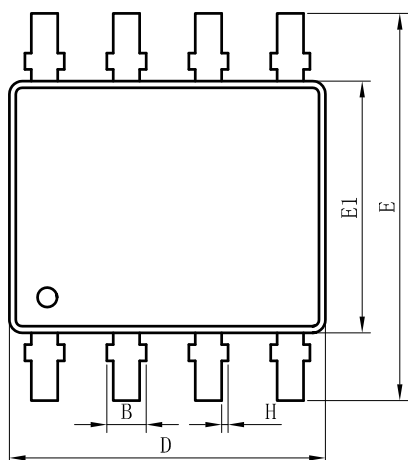
10. Single Pulse Maximum Power Dissipation



11. Normalized Thermal Transient Junction to Ambient

OUTLINE AND DIMENSIONS

SOP8

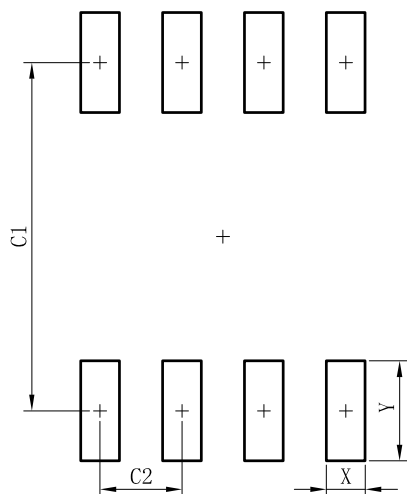


SOP8			
DIM	MIN	NOR	MAX
A	—	—	1.75
A1	0.10	0.15	0.20
A2	1.35	1.45	1.55
b	0.33	0.42	0.51
c	0.15	0.22	0.29
D	4.77	4.90	5.03
E	5.80	6.00	6.20
E1	3.80	3.90	4.00
e	1.27BSC		
L	0.46	0.66	0.86
L1	0.85	1.05	1.25
θ	0°	5°	8°
B	—	—	0.55
H	0	0.05	0.10
All Dimensions in mm			

GENERAL NOTES

1. Top package surface finish $Ra0.4 \pm 0.2\mu m$
2. Bottom package surface finish $Ra0.7 \pm 0.2\mu m$
3. Side package surface finish $Ra0.4 \pm 0.2\mu m$
4. Package Body Sizes Exclude Mold Flash, Protrusion Or Gate Burrs. Mold Flash, Protrusion Or Gate Burrs Shall Not Exceed 0.10 mm Per Side.
5. Dimension "b" Does Not Include Dambar Protrusion.

SOLDERING FOOTPRINT



SOP8	
DIM	(mm)
X	0.60
Y	1.55
C1	5.40
C2	1.27