

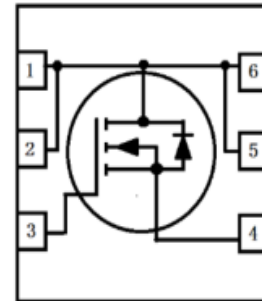
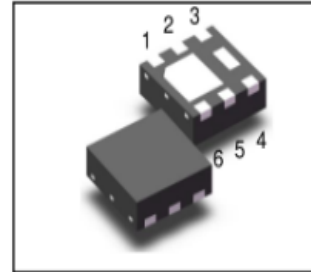
LN2324DT2AG

S-LN2324DT2AG

20V N-Channel (D-S) MOSFET

1. FEATURES

- $V_{DS} = 20V$
 $R_{DS(ON)} \leq 10.5m\Omega, V_{GS}@4.5V, I_{DS}@10A$
 $R_{DS(ON)} \leq 12.5m\Omega, V_{GS}@2.5V, I_{DS}@8A$
- Low $R_{DS(ON)}$ trench technology.
- Low thermal impedance.
- Fast switching speed.
- 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 Routing
- Level Shifting and Driver Circuits

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LN2324DT2AG	AN	4000/Tape&Reel

4. MAXIMUM RATINGS($T_a = 25^\circ C$)

Parameter	Symbol	Limits	Unit
Drain-Source Voltage	V_{DS}	20	V
Gate-Source Voltage	V_{GS}	± 8	
Continuous Drain Current(Note 1)	ID	$T_A = 25^\circ C$	A
		$T_A = 70^\circ C$	
Pulsed Drain Current(Note 2)	IDM	60	
Continuous Source Current (Diode Conduction)(Note 1)	IS	2.9	
Power Dissipation(Note 1)	PD	$T_A = 25^\circ C$	W
		$T_A = 70^\circ C$	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	$^\circ C$

Note: 1. Surface Mounted on 1" x 1" FR4 Board.

2. Pulse width limited by maximum junction temperature.

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Max	Unit
Maximum Junction-to-Ambient (Note 1)	$R_{\theta JA}$	$t \leq 10S$	$^\circ C/W$
		Steady State	

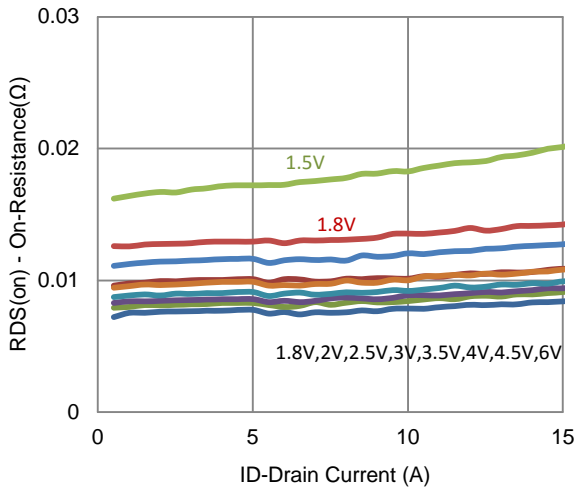
6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Static					
Gate-Source Threshold Voltage (VDS =VGS , ID =250μA)	VGS(th)	0.4	-	1	V
Gate-Body Leakage (VDS =0V, VGS =±8V)	IGSS	-	-	±100	nA
Zero Gate Voltage Drain Current (VDS = 16 V, VGS = 0 V) (VDS = 16 V, VGS = 0 V, TJ = 55°C)	IDSS	-	-	1 10	μA
On-State Drain Current(Note 3) (VDS = 5 V, VGS = 4.5 V)	ID(ON)	20	-	-	A
Drain-Source On-Resistance(Note 3) (VGS = 4.5 V, ID = 10 A) (VGS = 2.5 V, ID = 8 A)	RDS(ON)	-	-	10.5 12.5	mΩ
Forward Transconductance(Note 3) (VDS = 15 V, ID = 10 A)	gfs	-	5	-	S
Diode Forward Voltage(Note 3) (IS = 1.4 A, VGS = 0 V)	VSD	-	0.74	-	V
DYNAMIC(Note 4)					
Total Gate Charge	(VDS = 10 V, VGS = 4.5 V, ID = 10 A)	Qg	-	20	nC
Gate-Source Charge		Qgs	-	3.6	
Gate-Drain Charge		Qgd	-	5.5	
Input Capacitance	(VDS = 15 V, VGS = 0 V, f = 1 MHz)	Ciss	-	1920	pF
Output Capacitance		Coss	-	160	
Reverse Transfer Capacitance		Crss	-	143	
Turn-On Delay Time	(VDS = 10 V, RL = 1 Ω, ID = 10 A, VGEN = 4.5 V, RGEN = 6 Ω)	td(on)	-	6	ns
Turn-On Rise Time		tr	-	14	
Turn-Off Delay Time		td(off)	-	84	
Turn-Off Fall Time		tf	-	24	

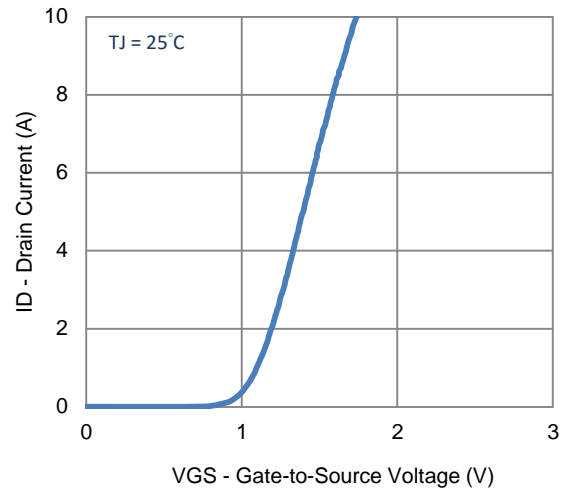
Note: 3. Pulse test; pulse width ≤ 300μs, duty cycle ≤ 2%.

4. Guaranteed by design, not subject to production testing.

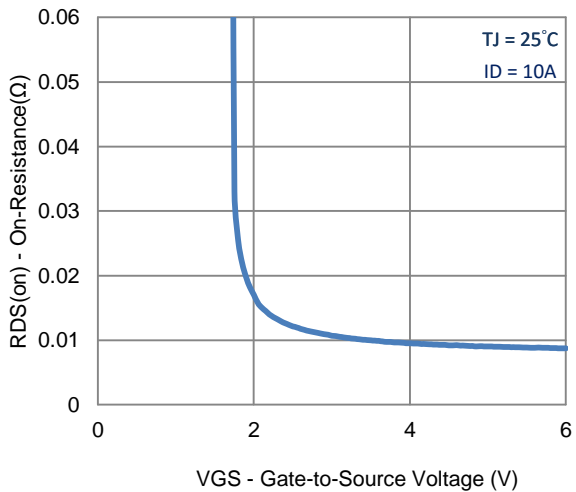
7. ELECTRICAL CHARACTERISTICS CURVES



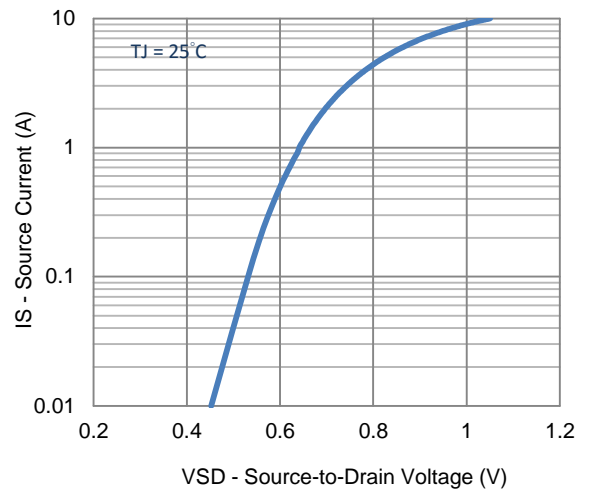
1. On-Resistance vs. Drain Current



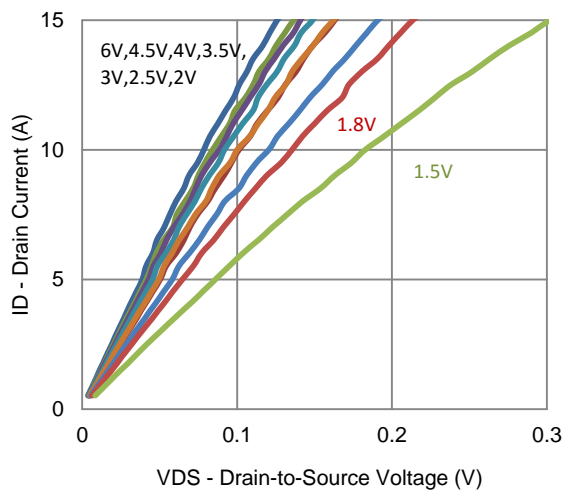
2. Transfer Characteristics



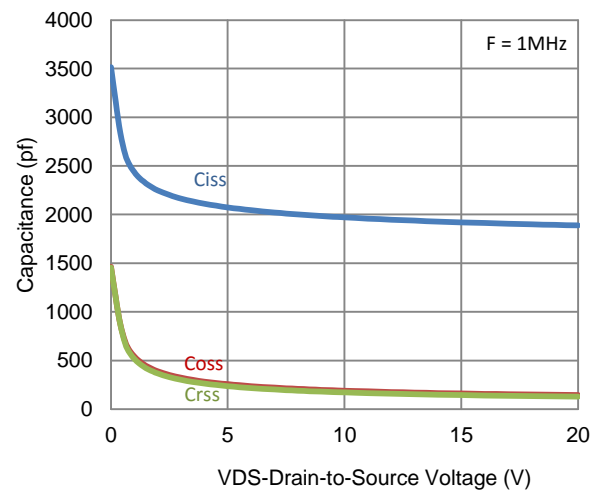
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

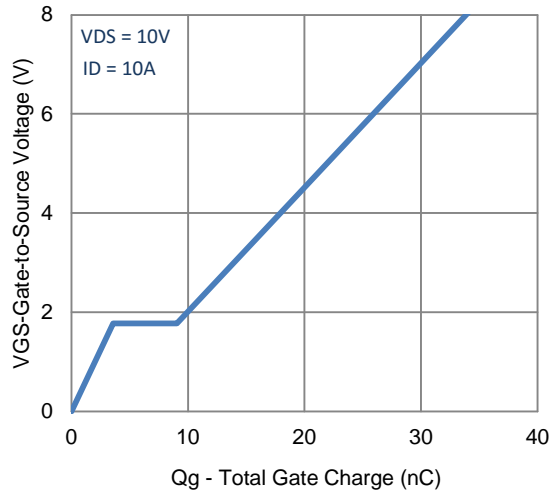


5. Output Characteristics

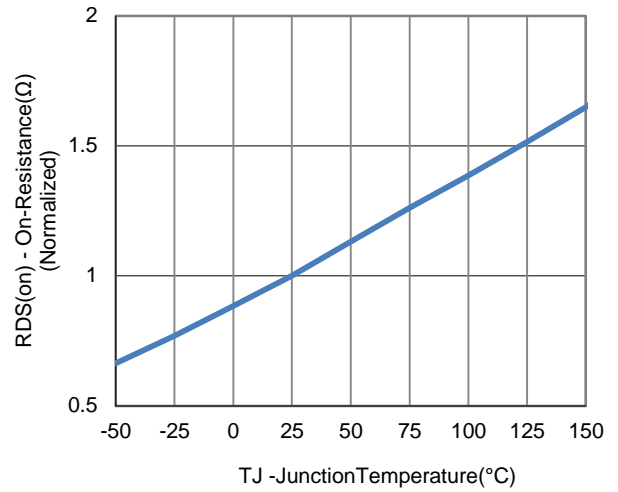


6. Capacitance

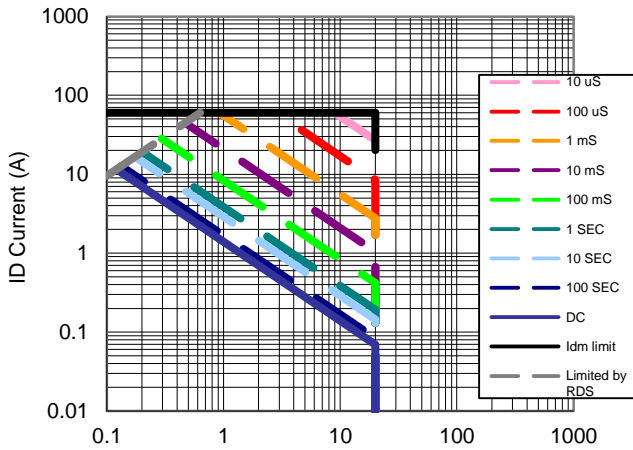
7. ELECTRICAL CHARACTERISTICS CURVES(Con.)



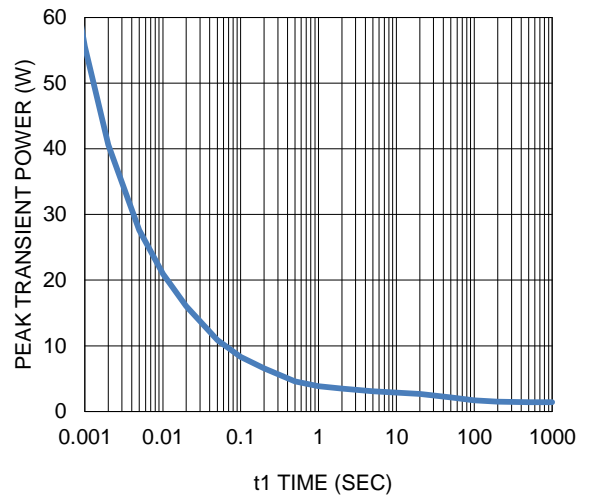
7. Gate Charge



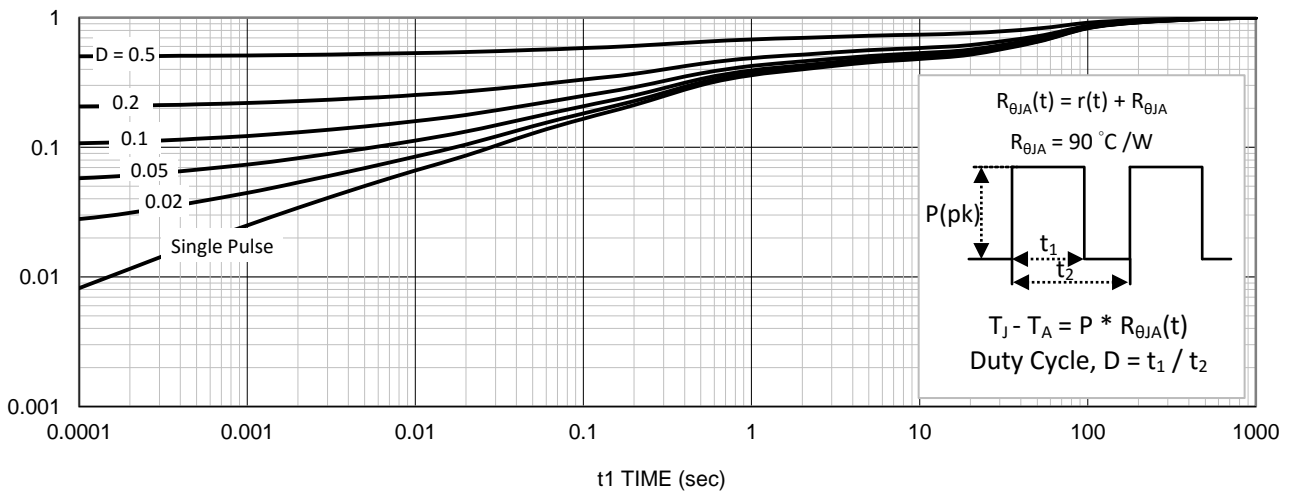
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

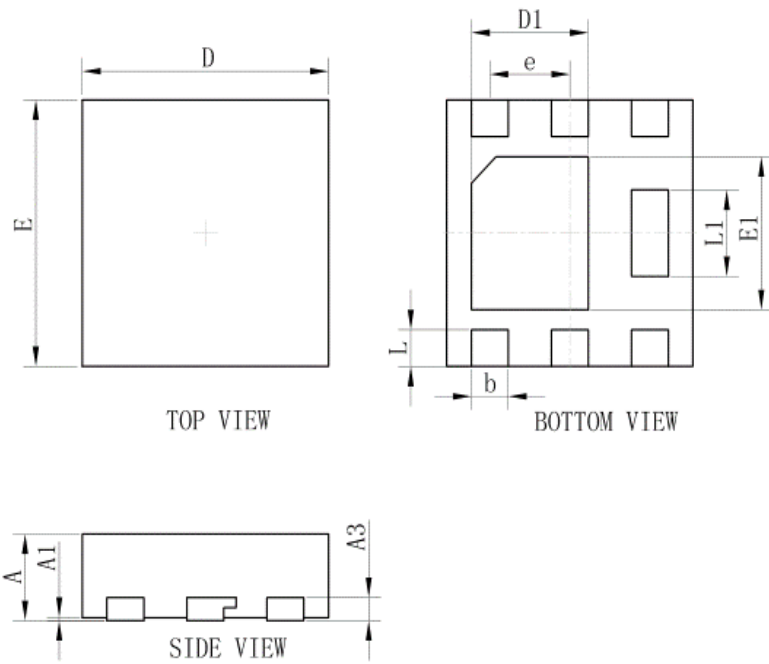


10. Single Pulse Maximum Power Dissipation



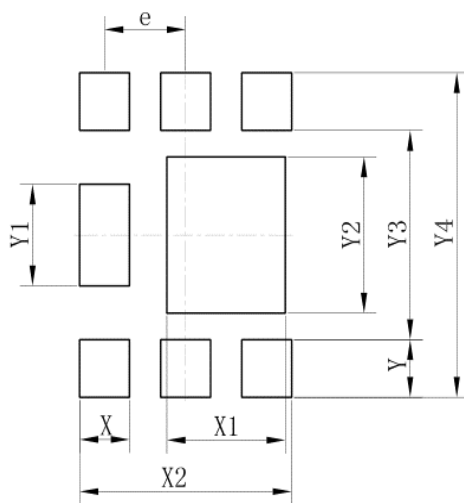
11. Normalized Thermal Transient Junction to Ambient

8.OUTLINE AND DIMENSIONS



DFN2020-6S			
DIM	MIN	NOR	MAX
A	0.60	0.65	0.70
A1	0.01	0.03	0.05
b	0.25	0.30	0.35
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	0.65TYP.		
L	0.23	0.28	0.33
L1	0.60	0.65	0.65
D1	0.90	0.95	1.00
E1	1.10	1.15	1.20
A3	0.152REF		
All Dimensions in mm			

9.SOLDERING FOOTPRINT



DFN2020-6S	
Dim	(mm)
X	0.40
X1	0.95
X2	1.70
e	0.65
Y	0.43
Y1	0.75
Y2	1.15
Y3	1.54
Y4	2.39