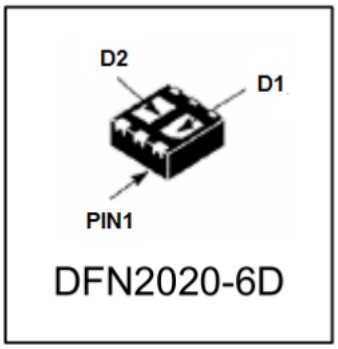
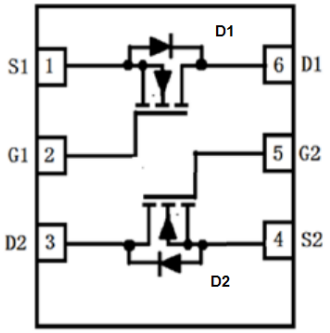
LN2506DT1G
S-LN2506DT1G

30V N-Channel Enhancement-Mode MOSFET



1. FEATURES

- VDS= 30V
- RDS(ON), VGS@10V, IDS@5.8A = 41mΩ
- RDS(ON), VGS@4.5V, IDS@5.0A = 45mΩ
- RDS(ON), VGS@2.5V, IDS@2.0A = 90mΩ
- 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

- Advanced trench process technology
- High density cell design for ultra low on-resistance

3. DEVICE MARKING AND ORDERING INFORMATION

Device	Marking	Shipping
LN2506DT1G	3B	4000/Tape&Reel

4. MAXIMUM RATINGS(Ta = 25ºC)

Parameter	Symbol	Limits	Unit
Drain–Source Voltage	VDSS	30	V
Gate–to–Source Voltage – Continuous	VGS	±12	V
Drain Current – Continuous TA = 25°C – Pulsed(Note 1)	 ID IDM	 5.8 30	A

5. THERMAL CHARACTERISTICS

Parameter	Symbol	Limits	Unit
Maximum Power Dissipation	PD	1.4	W
Thermal Resistance, Junction–to–Ambient(Note 2)	RΘJA	140	ºC/W
Junction and Storage temperature	TJ,Tstg	−55~+150	° C

1. Repetitive Rating: Pulse width limited by the Maximum junction temperation.
2. 1-in² 2oz Cu PCB board.

6. ELECTRICAL CHARACTERISTICS (Ta= 25°C)

OFF CHARACTERISTICS

Characteristic	Symbol	Min.	Typ.	Max.	Unit
Drain–Source Breakdown Voltage (VGS = 0, ID = 250μA)	V(BR)DSS	30	-	-	V
Zero Gate Voltage Drain Current (VDS=30V, VGS=0V)	IDSS	-	-	1	μA
Gate–Body Leakage Current, Forward (VDS = 0 V, VGS = 12 V)	IGSSF	-	-	100	nA
Gate–Body Leakage Current, Reverse (VDS = 0 V, VGS = -12 V)	IGSSR	-	-	-100	nA
Forward Transconductance (VDS = 5.0 V, ID = 5 A)	gfs	10	15	-	S

ON CHARACTERISTICS (Note 3)

Gate Threshold Voltage (VDS = VGS, ID = 250μA)	VGS(th)	0.7	-	1.4	V
Static Drain–Source On–State Resistance	RDS(on)				mΩ
(VGS = 10 V, ID =5.8 A)		-	31	41	
(VGS = 4.5 V, ID =5 A)		-	34	45	
(VGS = 2.5 V, ID = 2 A)		-	45	90	

DYNAMIC CHARACTERISTICS

Total Gate Charge (VGS = 4.5 V, ID = 5.8A,VDS= 15 V)	Qg	-	11	22	nC
Gate-Source Charge (VGS = 4.5 V, ID = 5.8A,VDS= 15 V)	Qgs	-	1.6	-	nC
Gate-Drain Charge (VGS = 4.5 V, ID = 5.8A,VDS= 15 V)	Qgd	-	2.8	-	nC
Input Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V)	Ciss	-	513.51	-	pF
Output Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V)	Coss	-	80.85	-	pF
Reverse Transfer Capacitance (VGS = 0 V, f = 1.0MHz,VDS= 15 V)	Crss	-	54.87	-	pF

SWITCHING CHARACTERISTICS

Turn-On Delay Time	(VDD = 15V, RL = 2.7Ω ID = 1A, VGEN = 10V,RG = 3Ω)	td(on)	-	7	14	ns
Rise Time		tr	-	15	30	
Turn-Off Delay Time		td(off)	-	38	76	
Fall Time		tf	-	3	6	

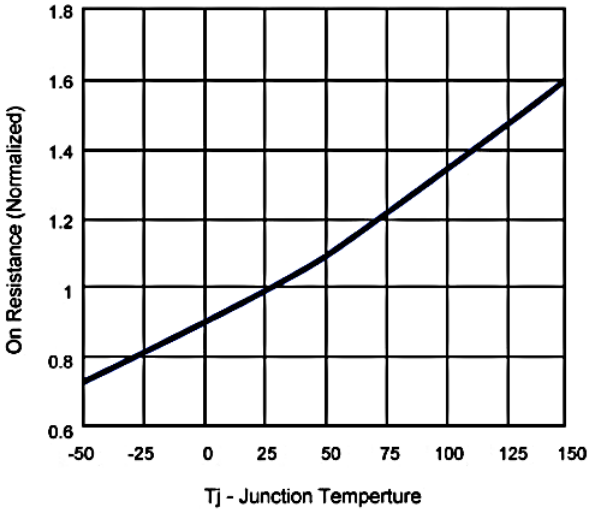
SOURCE–DRAIN DIODE CHARACTERISTICS

Forward Voltage (VGS = 0 V, ISD = 3 A)	VSD	-	-	1.2	V
Max.Diode Forward Current	IS	-	-	2.5	A

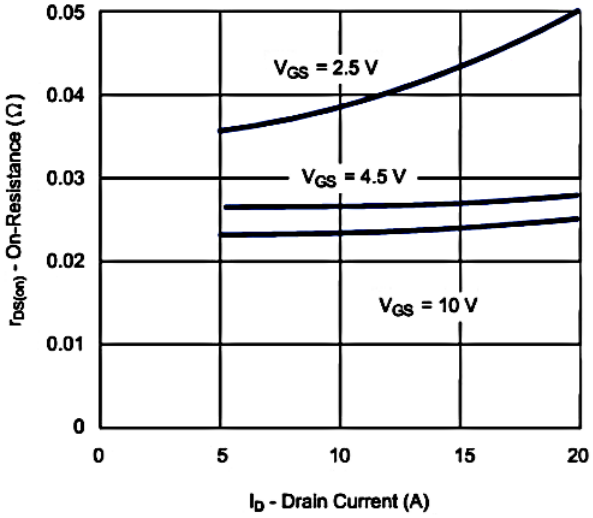
3.Pulse Test: Pulse Width ≤300 μs, Duty Cycle ≤2.0%.

7. ELECTRICAL CHARACTERISTICS CURVES

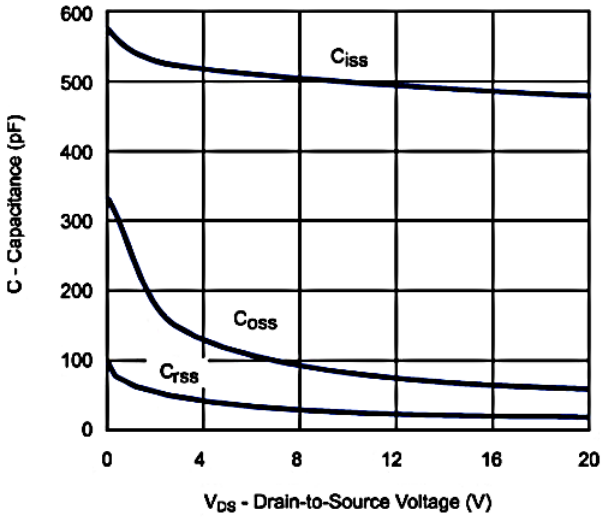
On Resistance vs. Junction Temperture



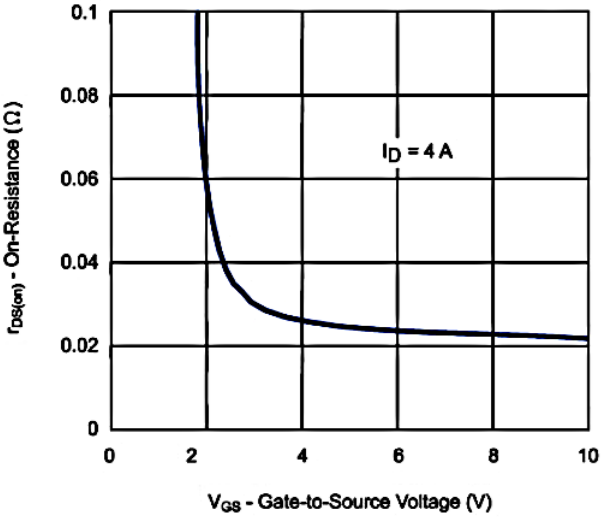
On-Resistance vs. Drain Current



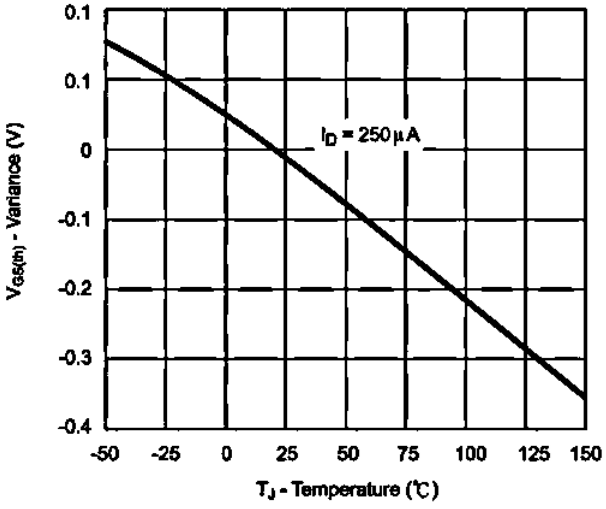
Capacitance



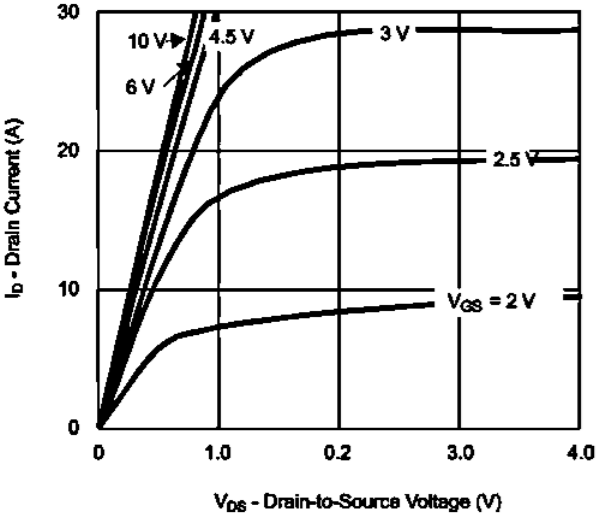
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage

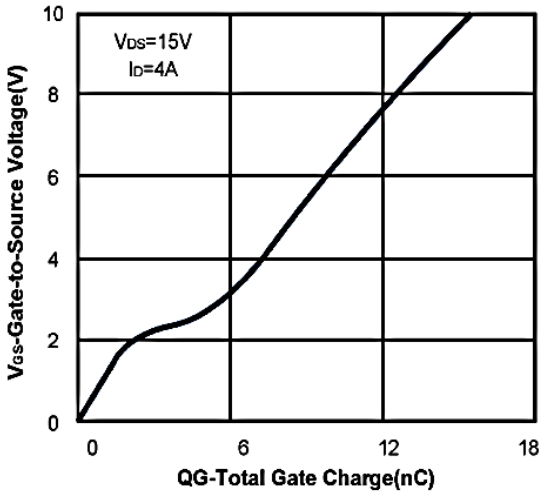


On-Region Characteristics

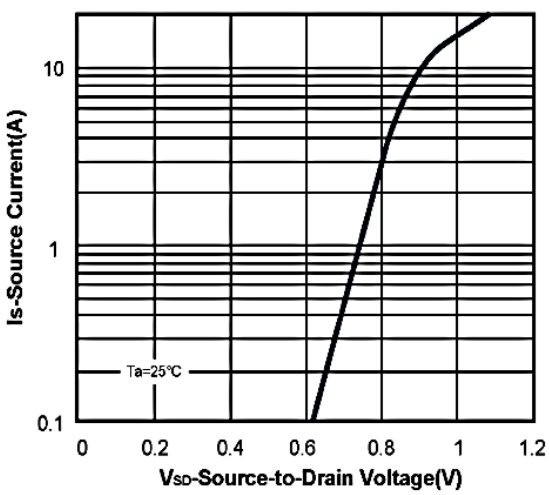


7. ELECTRICAL CHARACTERISTICS CURVES（Con.）

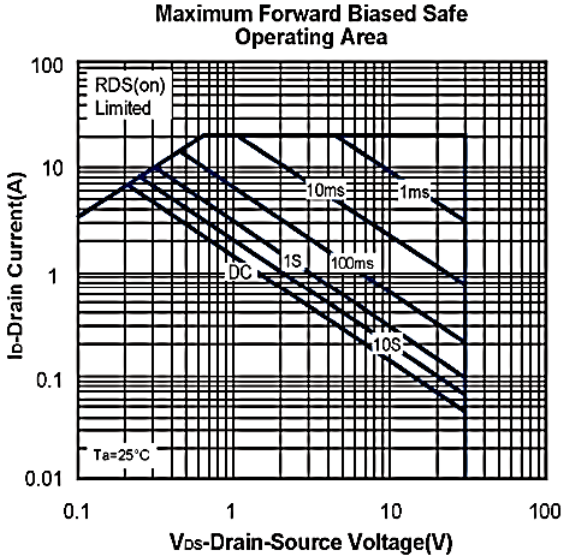
Gate Charge



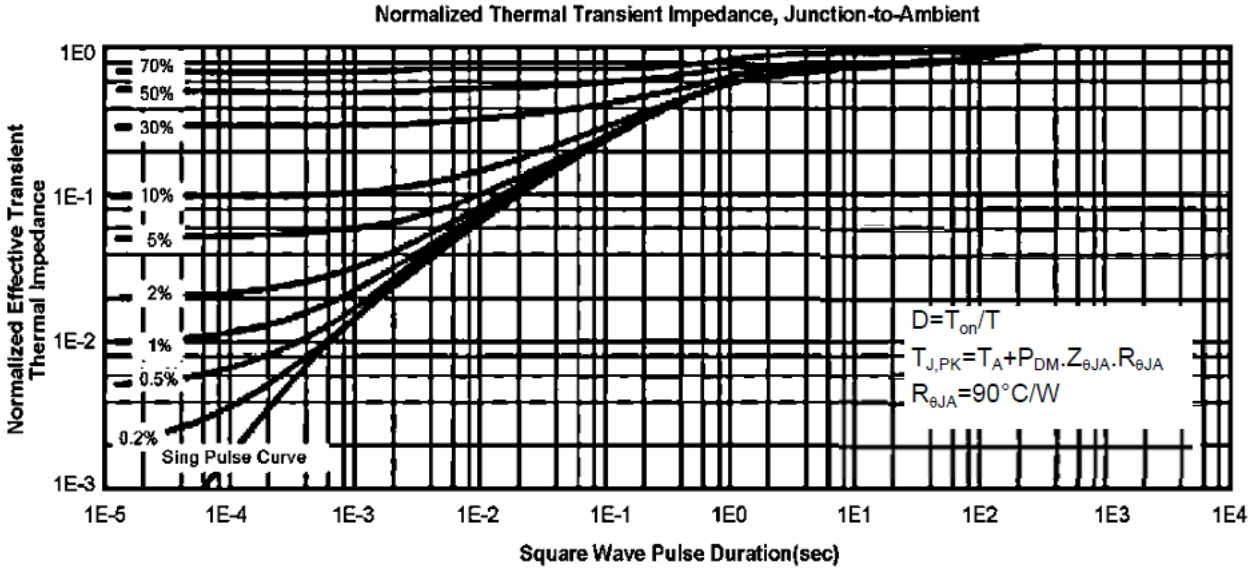
Body-diode characteristics



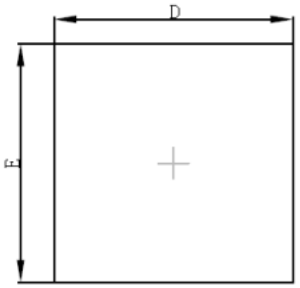
Maximum Forward Biased Safe Operating Area



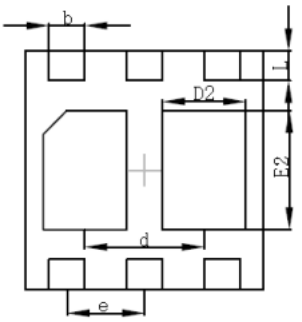
Normalized Thermal Transient Impedance, Junction-to-Ambient



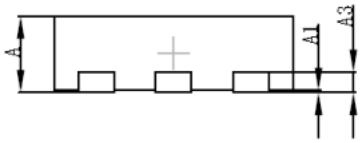
8.OUTLINE AND DIMENSIONS



TOP VIEW



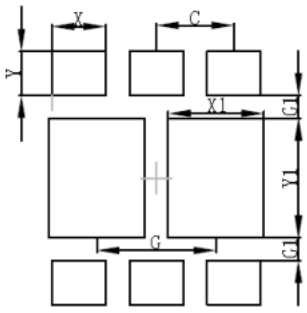
BOTTOM VIEW



SIDE VIEW

DFN2020 6D			
Dim	Min	Typ	Max
D	1.95	2.00	2.05
E	1.95	2.00	2.05
e	-	0.65	-
L	0.20	0.25	0.30
b	0.25	0.30	0.35
d	-	1.00	-
A	0.60	0.65	0.70
A1	0	0.02	0.05
A3	-	0.152	-
E2	0.95	1.00	1.05
D2	0.65	0.70	0.75
All Dimensions in mm			

9.SOLDERING FOOTPRINT



Dimensions	(mm)
X	0.45
Y	0.37
X1	0.80
Y1	1.00
C	0.65
G	1.00
G1	0.19