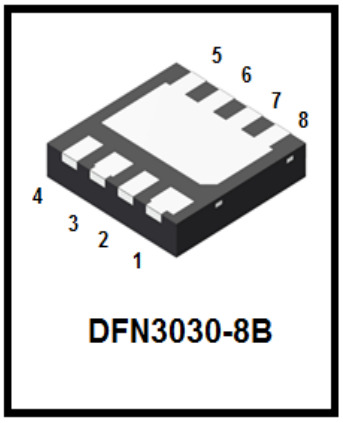
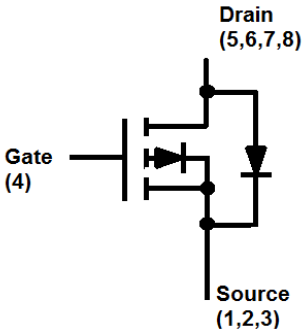
LP8104DT1AG

30V P-Channel (D-S) MOSFET



FEATURES

- VDS = -30V
  RDS(ON)≤13mΩ,VGS@-10V,IDS@-7A
  RDS(ON)≤19mΩ ,VGS@-4.5V,IDS@-5.7A
- Low RDS(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.



APPLICATIONS

- Load Switches
- DC/DC Conversion
- Motor Drives

ORDERING INFORMATION

Device	Marking	Shipping
LP8104DT1AG		4000/Tape&Reel

ABSOLUTE MAXIMUM RATINGS (T_A = 25°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°C	I_D	-14	A
	T_A=70°C		-12	
Pulsed Drain Current [b]		I_{DM}	-50	
Continuous Source Current (Diode Conduction) [a]		I_S	-4.1	A
Power Dissipation [a]	T_A=25°C	P_D	3.1	W
	T_A=70°C		2.2	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C

THERMAL RESISTANCE RATINGS				
Parameter		**Symbol**	**Maximum**	**Units**
Maximum Junction-to-Ambient [a]	t <= 10 sec	$R_{\theta JA}$	40	°C/W
	Steady State		80	

Notes

a. Surface Mounted on 1” x 1” FR4 Board.

b. Pulse width limited by maximum junction temperature

Electrical Characteristics

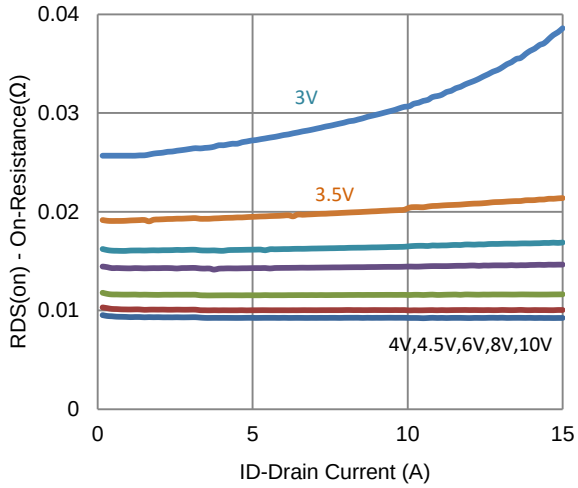
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = -250 uA	-1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±10	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = -24 V, V_{GS} = 0 V			-1	uA
		V_{DS} = -24 V, 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 = -7 A			14	mΩ
		V_{GS} = -4.5 V, I_D = -5.7 A			20	
Forward Transconductance [a]	g_{fs}	V_{DS} = -15 V, I_D = -7 A		28		S
Diode Forward Voltage [a]	V_{SD}	I_S = -2.1 A, V_{GS} = 0 V		-0.77		V
Dynamic [b]						
Total Gate Charge	Q_g	V_{DS} = -15 V, V_{GS} = -4.5 V, I_D = -7 A		28		nC
Gate-Source Charge	Q_{gs}			8.3		
Gate-Drain Charge	Q_{gd}			8.6		
Turn-On Delay Time	$t_{d(on)}$	V_{DS} = -15 V, R_L = 2.1 Ω, I_D = -7 A, V_{GEN} = -10 V, R_{GEN} = 6 Ω		7		ns
Rise Time	t_r			9		
Turn-Off Delay Time	$t_{d(off)}$			91		
Fall Time	t_f			35		
Input Capacitance	C_{iss}	V_{DS} = -15 V, V_{GS} = 0 V, f = 1 Mhz		2309		pF
Output Capacitance	C_{oss}			283		
Reverse Transfer Capacitance	C_{rss}			230		

Notes

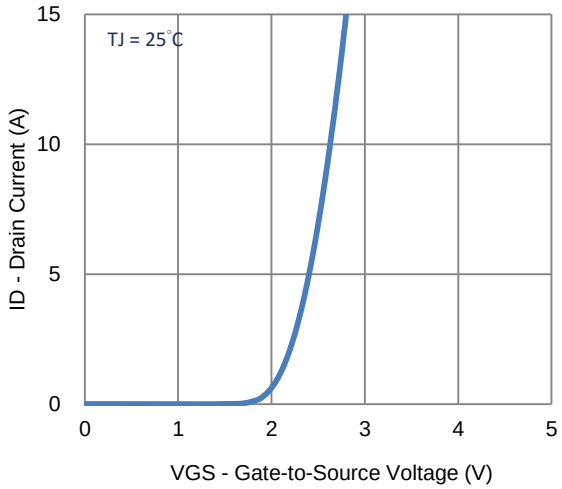
a. Pulse test: PW <= 300us duty cycle <= 2%.

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

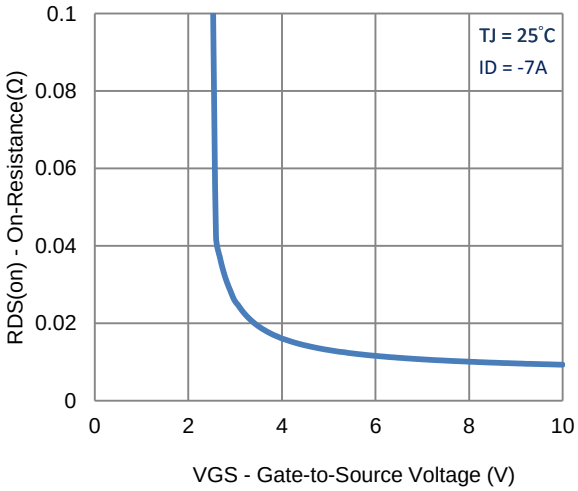
Typical Electrical Characteristics



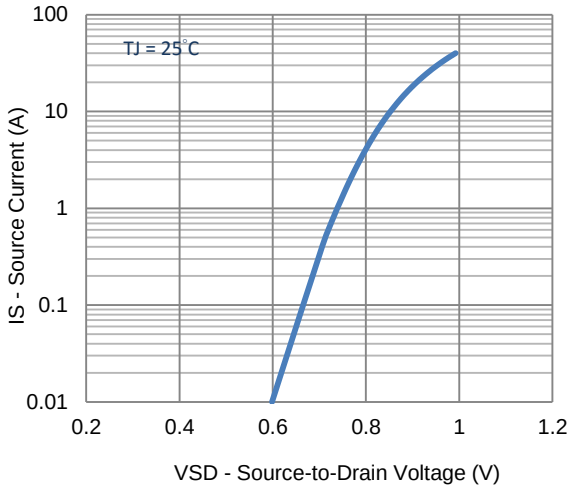
1. On-Resistance vs. Drain Current



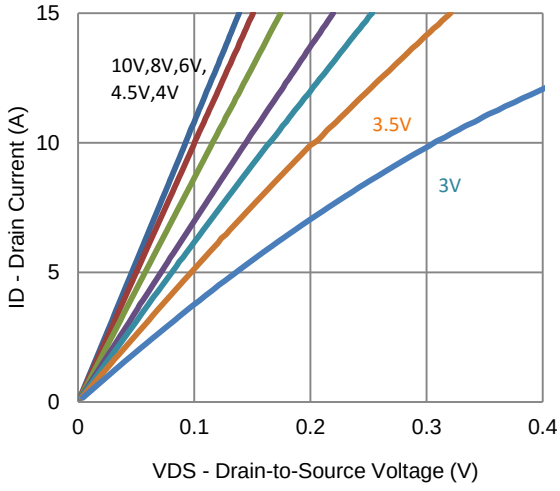
2. Transfer Characteristics



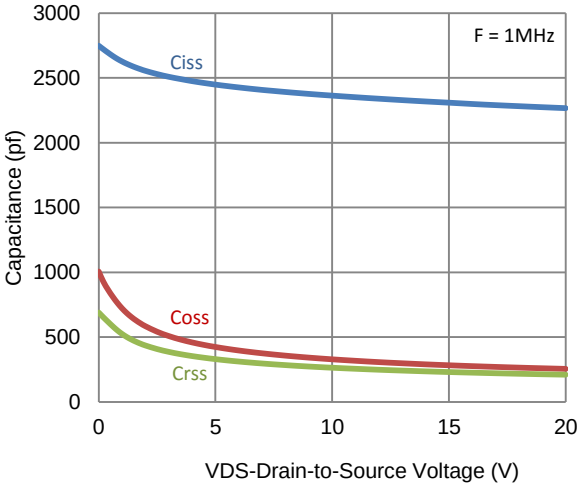
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

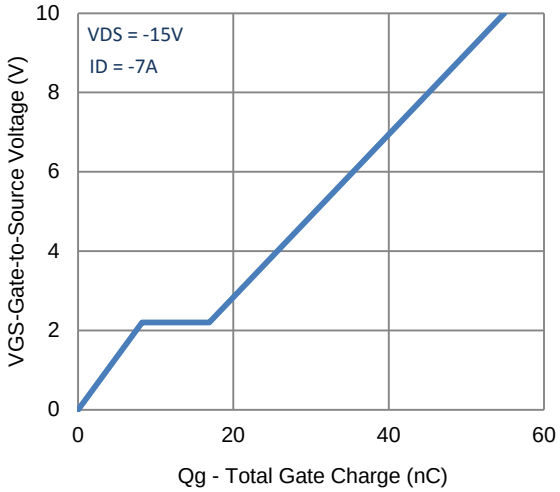


5. Output Characteristics

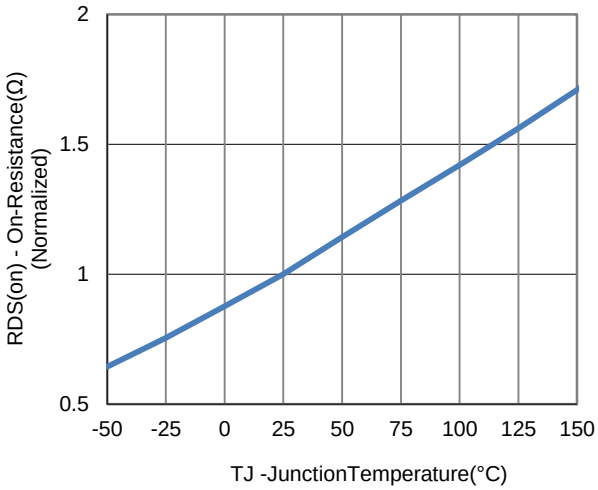


6. Capacitance

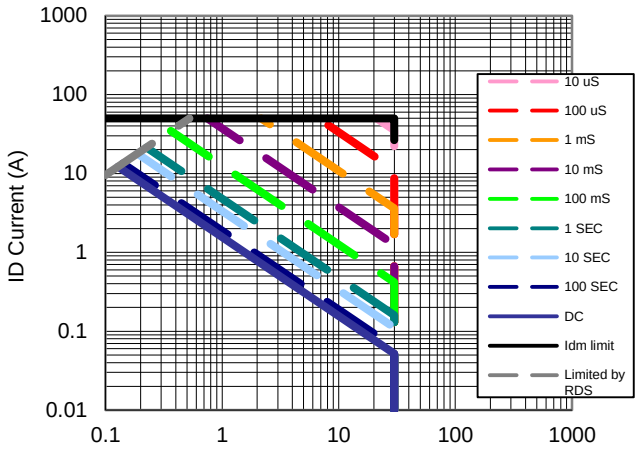
Typical Electrical Characteristics



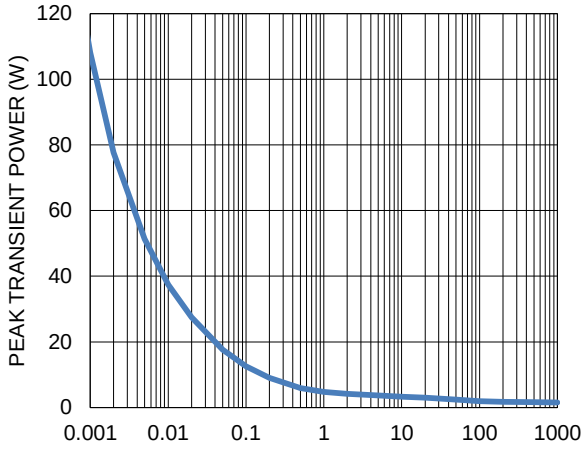
7. Gate Charge



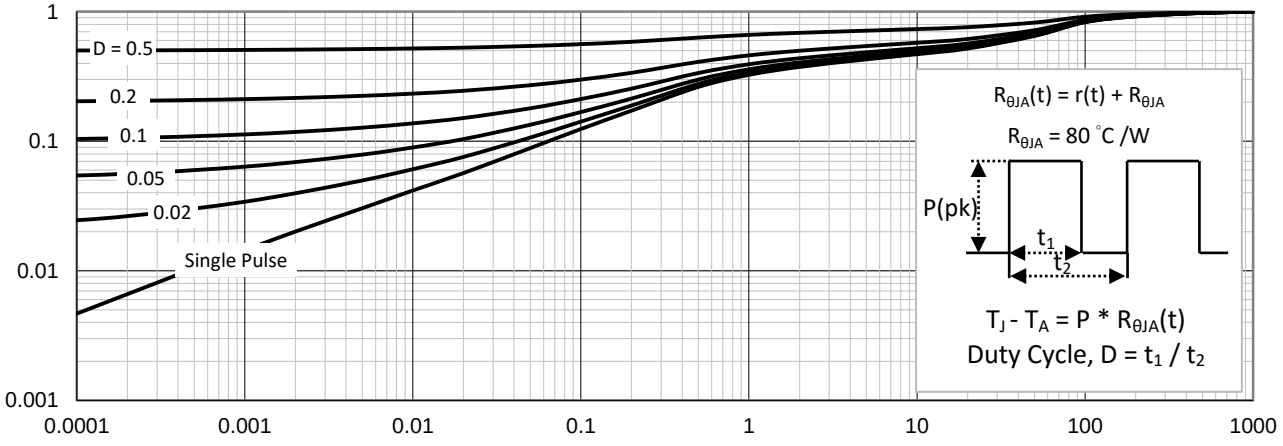
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

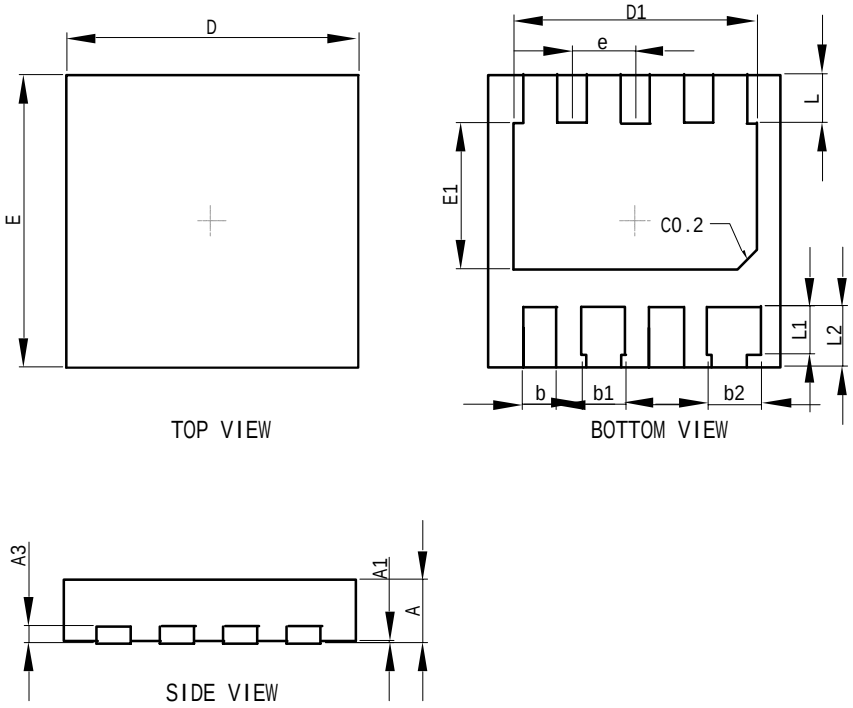


10. Single Pulse Maximum Power Dissipation



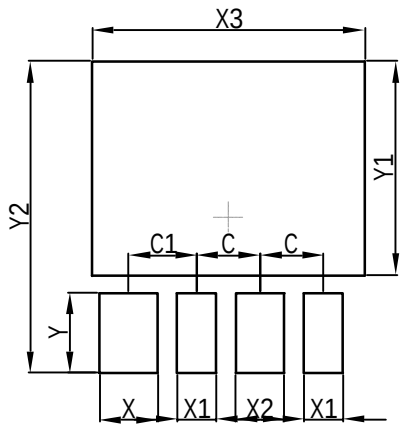
11. Normalized Thermal Transient Junction to Ambient

OUTLINE AND DIMENSIONS



DFN3030-8B			
Dim	Min	Nor	Max
A	0.60	0.65	0.70
A1	0.00	0.03	0.05
b	0.30	0.35	0.40
b1	0.40	0.45	0.50
b2	0.50	0.55	0.60
D	2.95	3.00	3.05
E	2.95	3.00	3.05
D1	2.45	2.50	2.55
E1	1.45	1.50	1.55
e	0.65BSC		
L	0.45	0.50	0.55
L1	0.44	0.49	0.54
L2	0.57	0.62	0.67
A3	0.152REF.		
All Dimensions in mm			

SOLDERING FOOTPRINT



DFN3030-8B	
Dim	(mm)
C	0.65
C1	0.70
X	0.60
X1	0.40
X2	0.50
X3	2.80
Y1	2.20
Y2	3.20
Y	0.82