

DN3018KW

DN3018KW N-Channel Enhancement MOSFET

General description

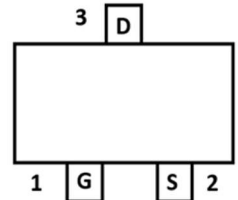
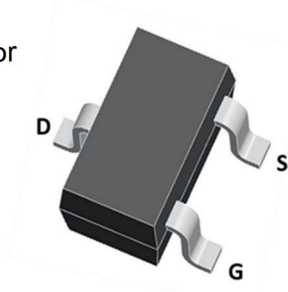
N-Channel Enhancement Mode Field Effect Transistor

FEATURES

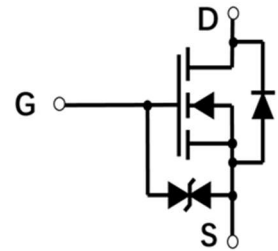
- ESD Protected Up to 2.5KV (HBM)
- Trench Power MV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast Switching Speed
- Low Input / Output Leakage

APPLICATIONS

- Battery operated systems
- Solid-state relays
- Direct logic-level interface: TTL/CMOS



SOT-323



$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
30 V	8mΩ@ 10V	0.3A
	13mΩ@4.5V	

Device Marking Code:

Device Type	Device Marking
DN3018KW	KN

Maximum Ratings (Ratings at 25°C ambient temperature unless otherwise specified.)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	30	V
Gate-source Voltage	V_{GS}	±20	V
Drain Current	I_D	300	mA
Pulsed Drain Current	I_{DM}	1.5	A
Total Power Dissipation @ $T_A=25^\circ\text{C}$	P_D	350	mW
Thermal Resistance Junction-to-Ambient @ Steady State ^B	$R_{\theta JA}$	357	°C/W
Junction and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Electrical Characteristics (Ratings at 25°C ambient temperature unless otherwise specified).

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=250\mu A$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30V, V_{GS}=0V$			1	μA
Gate-Body Leakage Current	I_{GSS1}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 9	μA
	I_{GSS2}	$V_{GS}=\pm 10V, V_{DS}=0V$			± 200	nA
	I_{GSS3}	$V_{GS}=\pm 5V, V_{DS}=0V$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.1	1.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V, I_D=300mA$		2.5	8.0	Ω
		$V_{GS}=4.5V, I_D=200mA$		3.0	13.0	
Diode Forward Voltage	V_{SD}	$I_S=300mA, V_{GS}=0V$			1.2	V
Maximum Body-Diode Continuous Current	I_S				340	mA
Dynamic Parameters						
Input Capacitance	C_{iss}	$V_{DS}=30V, V_{GS}=0V, f=1MHz$		18		pF
Output Capacitance	C_{oss}			12		
Reverse Transfer Capacitance	C_{rss}			7		
Switching Parameters						
Total Gate Charge	Q_g	$V_{GS}=10V, V_{DS}=30V, I_D=0.3A$		1.7	2.4	nC
Turn-on Delay Time	$t_{D(on)}$	$V_{GS}=10V, V_{DD}=30V, I_D=300mA, R_{GEN}=6\Omega$		5		ns
Turn-off Delay Time	$t_{D(off)}$			17		
Reverse recovery Time	t_{rr}	$V_{GS}=0V, I_S=300mA, V_R=25V, di_S/dt=-100A/\mu s$		30		ns

Note :

A.Pulse Test: Pulse Width $\leq 300\mu s$, Duty cycle $\leq 2\%$.

B.Device mounted on FR-4 PCB, 1 inch x 0.85 inch x 0.062 inch.

Typical Characteristics

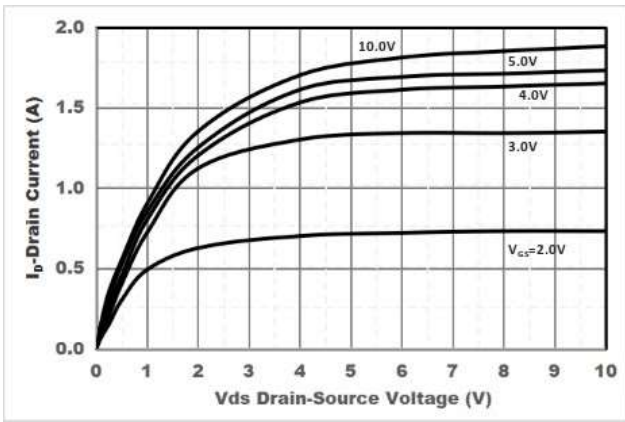


Figure1. Output Characteristics

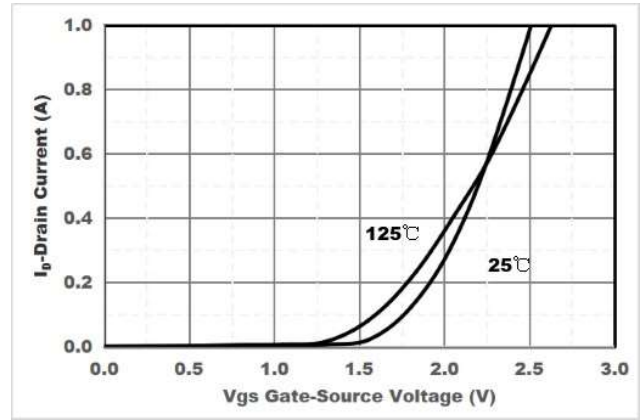


Figure2. Transfer Characteristics

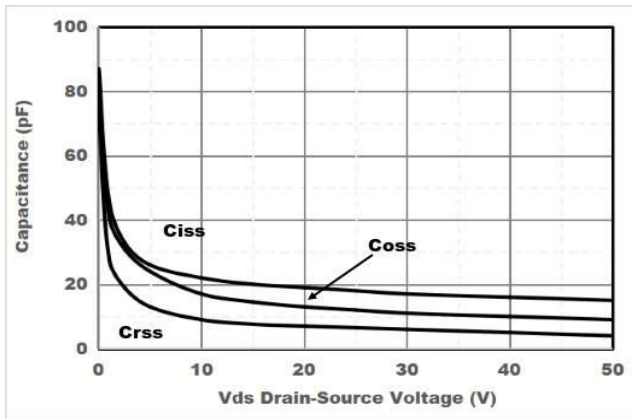


Figure3. Capacitance Characteristics

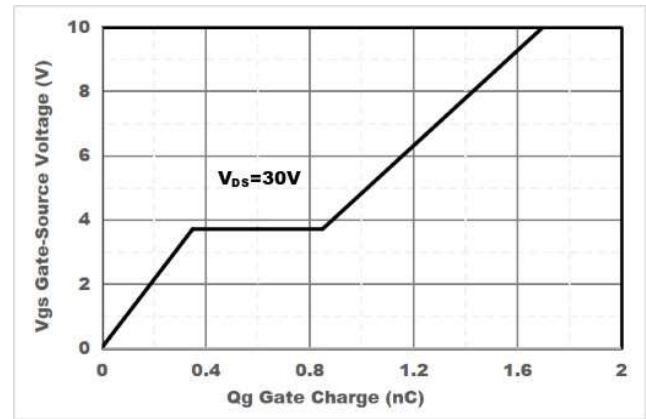


Figure4. Gate Charge

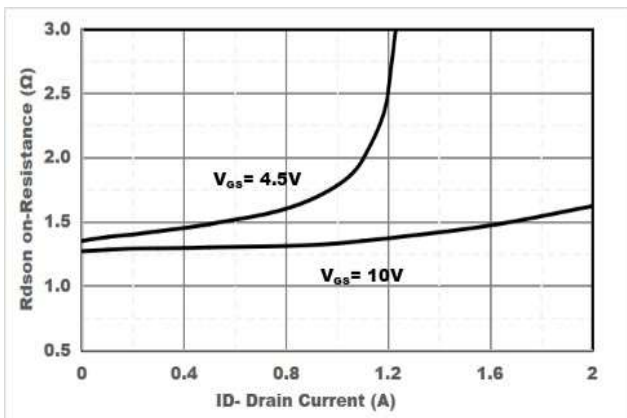


Figure5. Drain-Source on Resistance

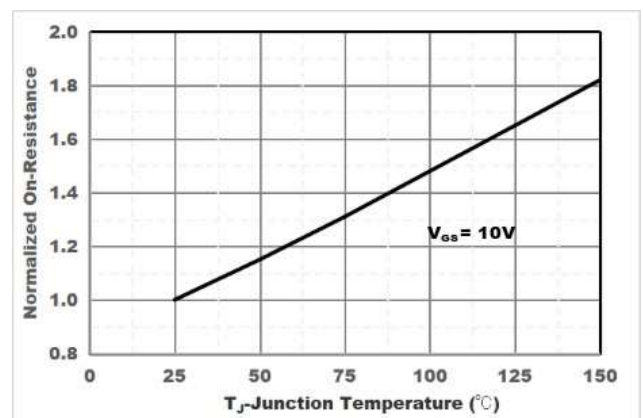


Figure6. Drain-Source on Resistance

DN3018KW

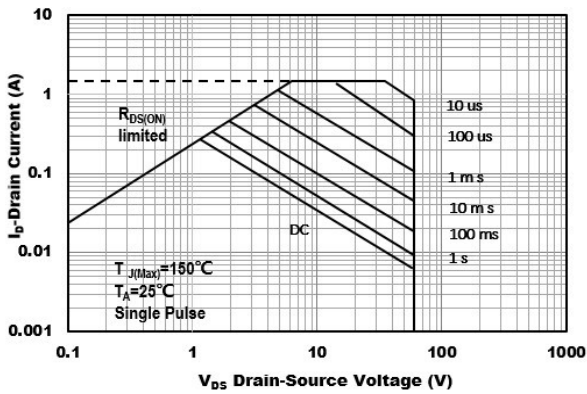


Figure7. Safe Operation Area

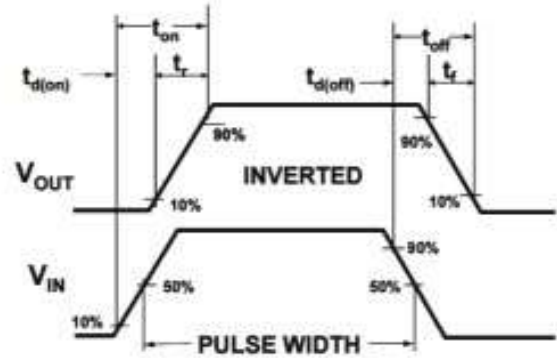
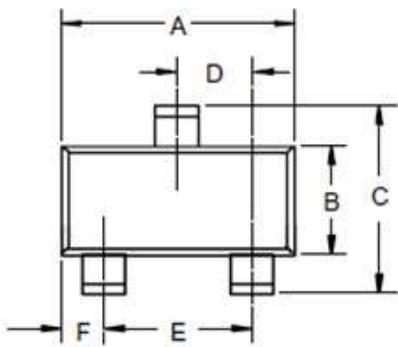
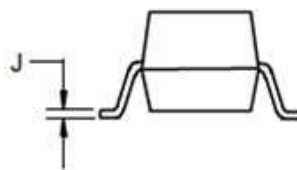
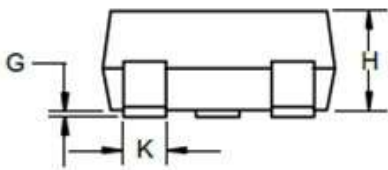


Figure8. Switching wave

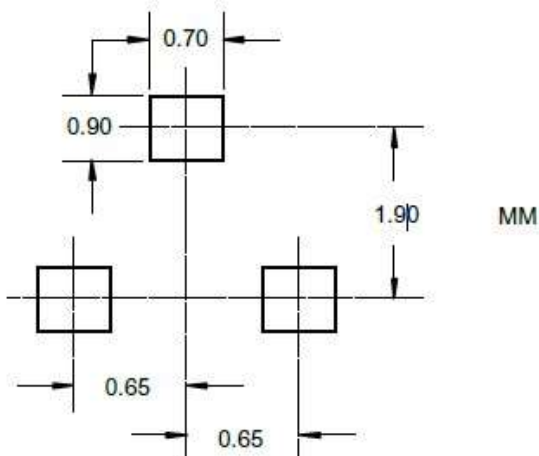
SOT-323 Package information



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	.071	.087	1.80	2.20	
B	.045	.053	1.15	1.35	
C	.083	.096	2.10	2.45	
D	.026 Nominal		0.65Nominal		
E	.047	.055	1.20	1.40	
F	.012	.016	.30	.40	
G	.000	.004	.000	.100	
H	.035	.039	.90	1.00	
J	.004	.010	.100	.250	
K	.006	.016	.15	.40	



SOT-323 Suggested Pad Layout



Important Notice and Disclaimer

DOESHARE has used reasonable care in preparing the information included in this document, but DOESHARE does not warrant that such information is error free. DOESHARE assumes no liability whatsoever for any damages incurred by you resulting from errors in or omissions from the information included herein.

DOESHARE no warranty, representation or guarantee regarding the documents, circuits and products specification, DOESHARE reservation rights to make changes for any documents, products, circuits and specifications at any time without notice.

Purchasers are solely responsible for the choice, selection and use of the DOESHARE products and services described herein, and DOESHARE assumes no liability whatsoever relating to the choice, selection or use of the products and services described herein.

No license, express or implied, by implication or otherwise under any intellectual property rights of DOESHARE.

Resale of DOESHARE products with provisions different from the statements and/or technical features set forth in this document shall immediately void any warranty granted by DOESHARE for the DOESHARE product or service described herein and shall not create or extend in any manner whatsoever, any liability of DOESHARE.