Silicon N-channel MOSFET 100mA, 30V

• Features

1) Low on-resistance.

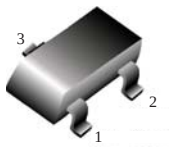
2) Fast switching speed.

3) Low voltage drive (2.5V) makes this device ideal for portable equipment.

4) Easily designed drive circuits.

5) Easy to parallel.

- ESD>500V
- We declare that the material of product compliance with RoHS requirements.



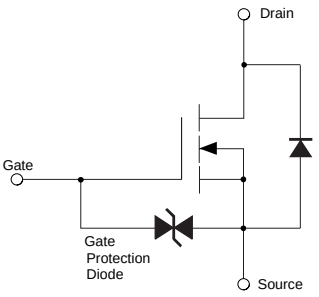
SOT–323

MAXIMUM RATINGS

Parameter		Symbol	Limits	Unit
Drain-source voltage		V_{DSS}	30	V
Gate-source voltage		V_{GSS}	±20	V
Drain current	Continuous	$I_{D\ (1)}$	±100	mA
	Pulsed	$I_{DP\ (2)}$	±400	mA
Total power dissipation (Tc=25°C)		P_D	200	mW
Channel temperature		Tch	150	°C
Storage temperature		Tstg	−55 to +150	°C

1 Pw≤10μs, Duty cycle≤1%
2 With each pin mounted on the recommended lands.

N - Channel

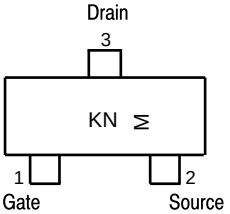


A protection diode is included between the gate and the source terminals to protect the diode against static electricity when the product is in use. Use a protection circuit when the fixed voltages are exceeded.

ORDERING INFORMATION

Device	Marking	Shipping
FTK3018	KN	3000 Tape & Reel

MARKING DIAGRAM & PIN ASSIGNMENT



KN = Device Code
M = Month Code

ELECTRICAL CHARACTERISTICS (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Conditions
Gate-source leakage	I_{GSS}	–	–	±1	μA	V_{GS} = ±20V, V_{DS} = 0V
Drain-source breakdown voltage	$V_{(BR)DSS}$	30	–	–	V	I_D = 10μA, V_{GS} = 0V
Zero gate voltage drain current	I_{DSS}	–	–	1	μA	V_{DS} = 30V, V_{GS} = 0V
Gate threshold voltage	$V_{GS(th)}$	0.8	–	1.5	V	V_{DS} = 3V, I_D = 100μA
Static drain-source on-state resistance	$R_{DS(on)}$	–	5	8	Ω	I_D = 10mA, V_{GS} = 4V
	$R_{DS(on)}$	–	7	13	Ω	I_D = 1mA, V_{GS} = 2.5V
Forward transfer admittance	$\|Y_{fs}\|$	20	–	–	mS	V_{DS} = 3V, I_D = 10mA
Input capacitance	C_{iss}	–	13	–	pF	V_{DS} = 5V
Output capacitance	C_{oss}	–	9	–	pF	V_{GS} = 0V
Reverse transfer capacitance	C_{rss}	–	4	–	pF	f = 1MHz
Turn-on delay time	$t_{d(on)}$	–	15	–	ns	I_D = 10mA, V_{DD} ≒ 5V
Rise time	t_r	–	35	–	ns	V_{GS} = 5V
Turn-off delay time	$t_{d(off)}$	–	80	–	ns	R_L = 500Ω
Fall time	t_f	–	80	–	ns	R_G = 10Ω

TYPICAL ELECTRICAL CHARACTERISTICS

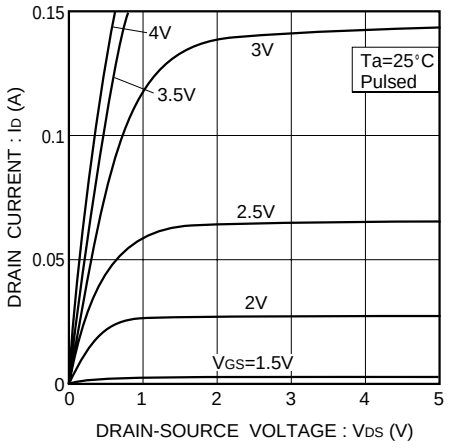


Fig.1 Typical output characteristics

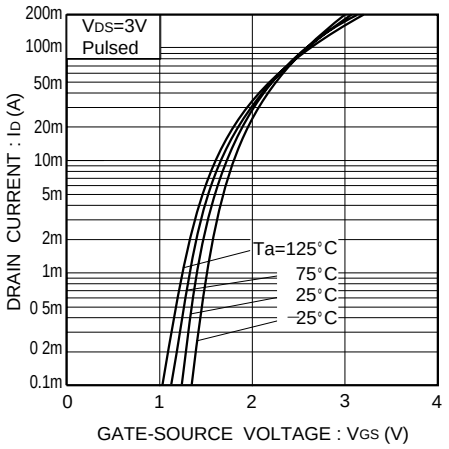


Fig.2 Typical transfer characteristics

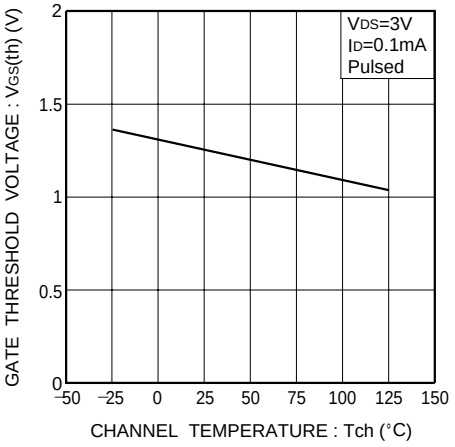


Fig.3 Gate threshold voltage vs. channel temperature

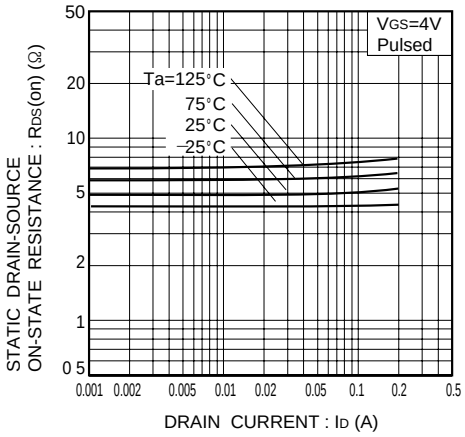


Fig.4 Static drain-source on-state resistance vs. drain current (Ⅰ)

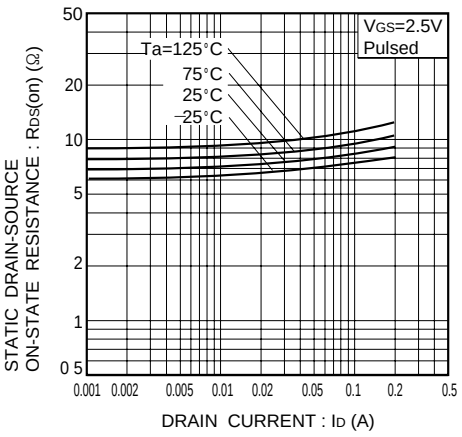


Fig.5 Static drain-source on-state resistance vs. drain current (Ⅱ)

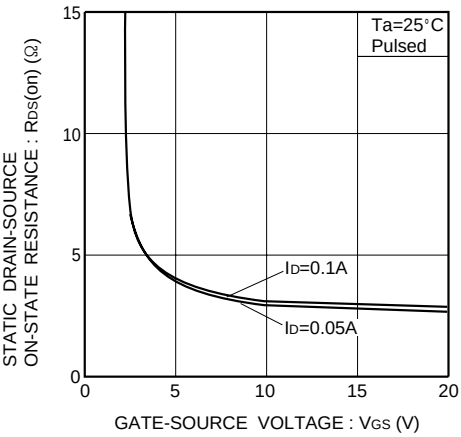


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

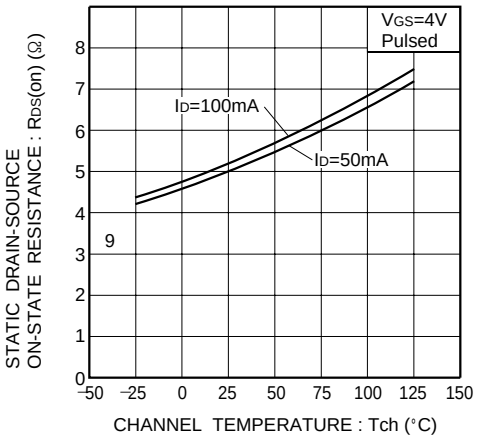


Fig.7 Static drain-source on-state resistance vs. channel temperature

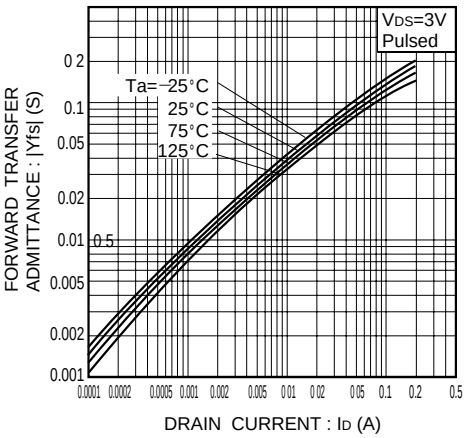


Fig.8 Forward transfer admittance vs. drain current

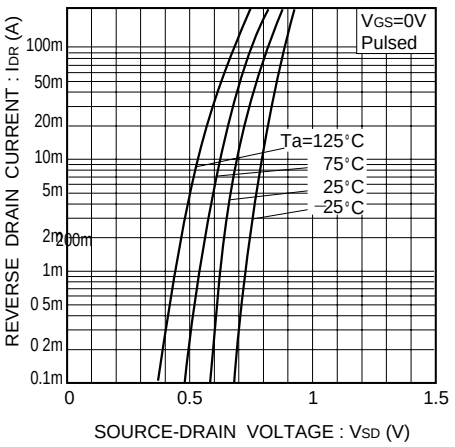


Fig.9 Reverse drain current vs. source-drain voltage (Ⅰ)

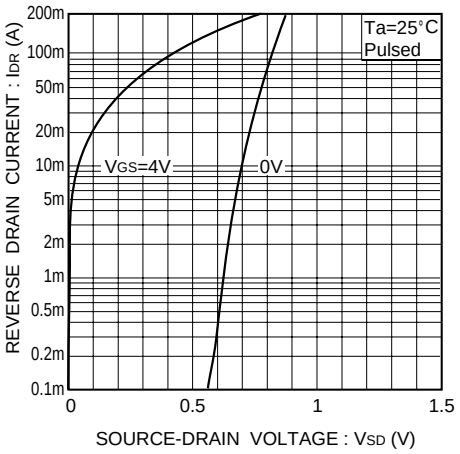


Fig.10 Reverse drain current vs. source-drain voltage (II)

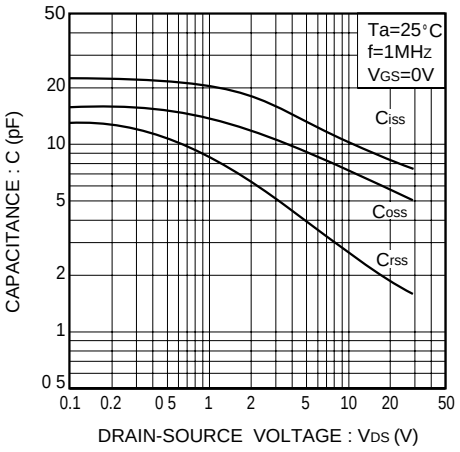


Fig.11 Typical capacitance vs. drain-source voltage

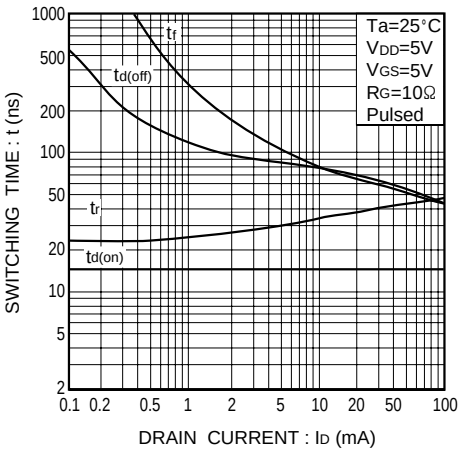


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

●Switching characteristics measurement circuit

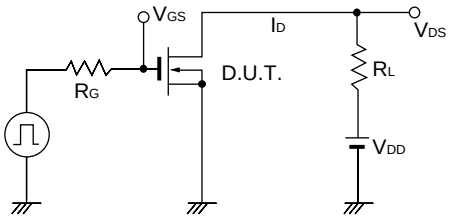


Fig.13 Switching time measurement circuit

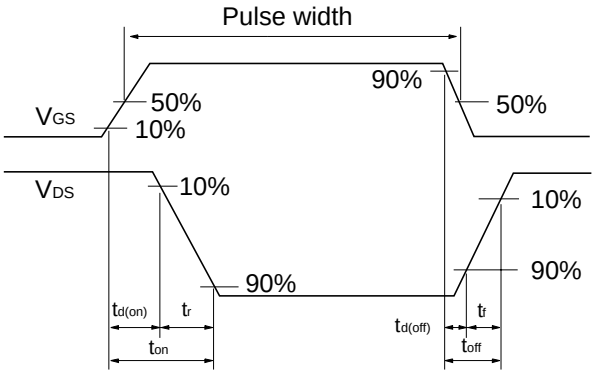
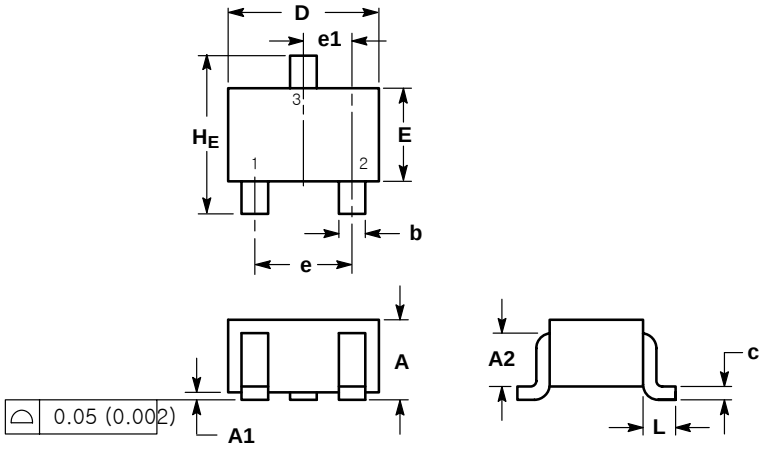


Fig.14 Switching time waveforms

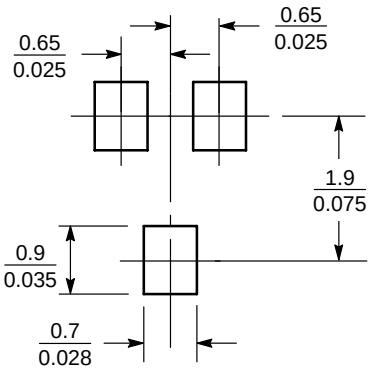
SOT-323 (SC−70)



NOTES:
1. DIMENSIONING AND TOLERANCING PER ANSI Y14.5M, 1982.
2. CONTROLLING DIMENSION: INCH.

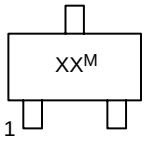
	MILLIMETERS			INCHES		
DIM	MIN	NOM	MAX	MIN	NOM	MAX
A	0 80	0.90	1 00	0.032	0 035	0.040
A1	0 00	0.05	0.10	0.000	0 002	0.004
A2		0.7 REF			0.028 REF	
b	0 30	0.35	0.40	0.012	0 014	0.016
c	0.10	0.18	0 25	0.004	0 007	0.010
D	1 80	2.10	2 20	0.071	0 083	0.087
E	1.15	1.24	1 35	0.045	0 049	0.053
e	1 20	1.30	1.40	0.047	0 051	0.055
e1		0 65 BSC			0.026 BSC	
L		0.425 REF			0 017 REF	
HE	2 00	2.10	2.40	0.079	0 083	0.095

SOLDERING FOOTPRINT*



SCALE 10:1 (mm / inches)

GENERIC MARKING DIAGRAM



XX = Specific Device Code
M = Date Code
▪ = Pb−Free Package

*This information is generic. Please refer to device data sheet for actual part marking. Pb−Free indicator, “G” or microdot “ ▪”, may or may not be present.