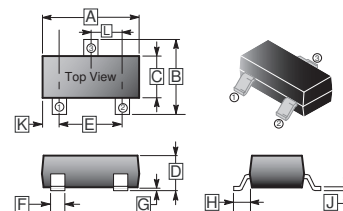


RoHS Compliant Product
A Suffix of "-C" specifies halogen & lead-free

SOT-323

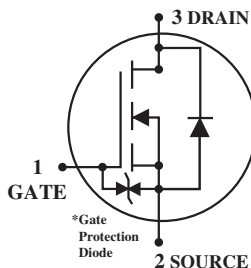
DESCRIPTION

- Low on-resistance
- Fast switching speed
- Low voltage drive (2.5V) makes this device ideal for portable equipment
- Easily designed drive circuits
- Easy to parallel



FEATURES

- Simple drive requirement
- Small package outline



DEVICE MARKING: KN

REF.	Millimeter		REF.	Millimeter	
	Min.	Max.		Min.	Max.
A	1.80	2.20	G	0.100	REF.
B	1.80	2.45	H	0.525	REF.
C	1.15	1.35	J	0.08	0.25
D	0.80	1.10	K	-	-
E	1.20	1.40	L	0.650	TYP.
F	0.20	0.40			

MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	RATING	UNIT
Drain – Source Voltage	V_{DS}	30	V
Gate – Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	100	mA
Pulsed Drain Current ($t_p \leq 10\mu\text{s}$)	I_{DM}	400	mA
Power Dissipation *	P_D	200	mW
Operating Junction & Storage Temperature Range	T_J, T_{STG}	150, -55~150	$^\circ\text{C}$

Note: With each pin mounted on the recommended lands.

ELECTRICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$ unless otherwise specified)

PARAMETER	SYMBOL	MIN	TYP	MAX	UNIT	TEST CONDITION
STATIC CHARACTERISTICS						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	30	-	-	V	$V_{GS}=0V, I_D=10\mu\text{A}$
Gate-Threshold Voltage	$V_{GS(TH)}$	0.8	-	1.5	V	$V_{DS}=3V, I_D=100\mu\text{A}$
Gate-Source Leakage Current	I_{GSS}	-	-	± 1.0	μA	$V_{GS}=\pm 20V$
Drain-Source Leakage Current	I_{DSS}	-	-	1.0	μA	$V_{DS}=30V, V_{GS}=0V$
Static Drain-Source On-Resistance	$R_{DS(ON)}$	-	5.0	8.0	Ω	$V_{GS}=4V, I_D=10\text{mA}$
		-	7.0	13		$V_{GS}=2.5V, I_D=1\text{mA}$
Forward Transconductance	g_{FS}	20	-	-	ms	$V_{DS}=3V, I_D=10\text{mA}$
DYNAMIC CHARACTERISTICS						
Input Capacitance	C_{ISS}	-	13	-	pF	$V_{DS}=5V$
Output Capacitance	C_{OSS}	-	9	-		$V_{GS}=0V$
Reverse Transfer Capacitance	C_{RSS}	-	4	-		$f=1\text{MHz}$
SWITCHING CHARACTERISTICS						
Turn-on Delay Time	$T_{d(ON)}$	-	15	-	nS	$V_{GS}=5V$
Rise Time	T_R	-	35	-		$I_D=10\text{mA}$
Turn-off Delay Time	$T_{d(OFF)}$	-	80	-		$R_L=500\Omega$
Fall Time	T_F	-	80	-		$R_G=10\Omega$

CHARACTERISTIC CURVES

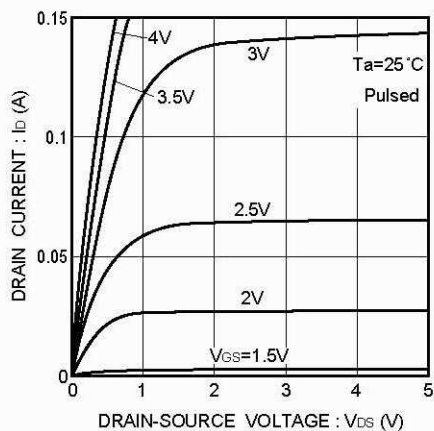


Fig.1 Typical output characteristics

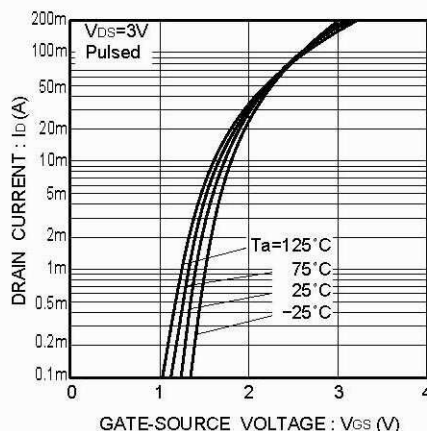


Fig.2 Typical transfer characteristics

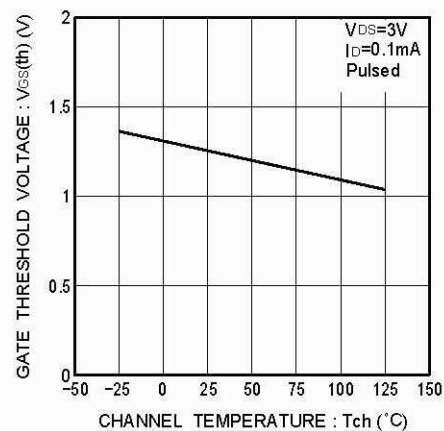


Fig.3 Gate threshold voltage vs. channel temperature

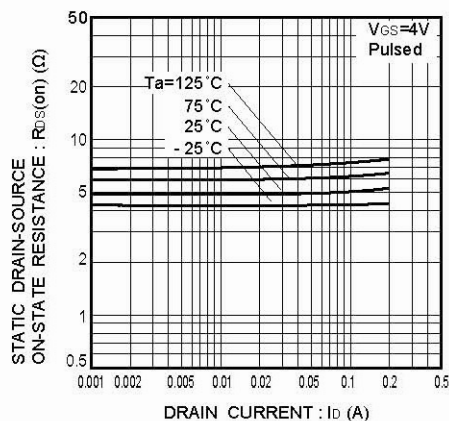


Fig.4 Static drain-source on-state resistance vs. drain current (I)

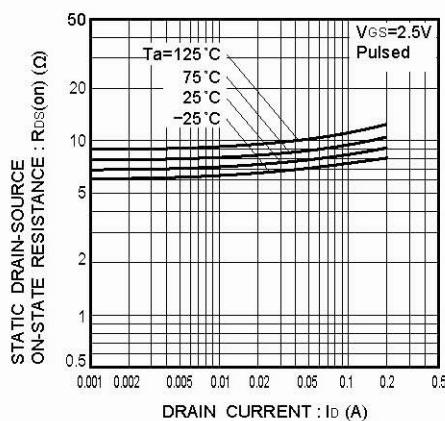


Fig.5 Static drain-source on-state resistance vs. drain current (II)

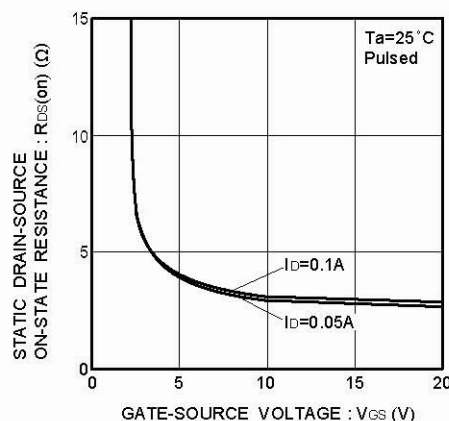


Fig.6 Static drain-source on-state resistance vs. gate-source voltage

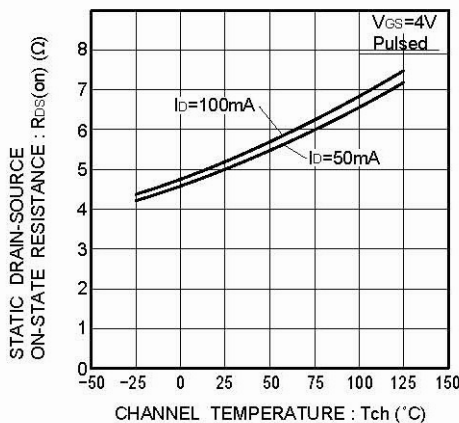


Fig.7 Static drain-source on-state resistance vs. channel temperature

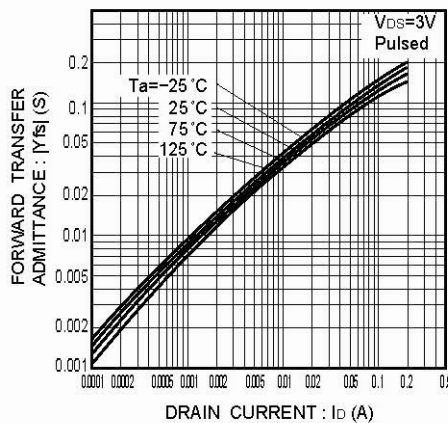


Fig.8 Forward transfer admittance vs. drain current

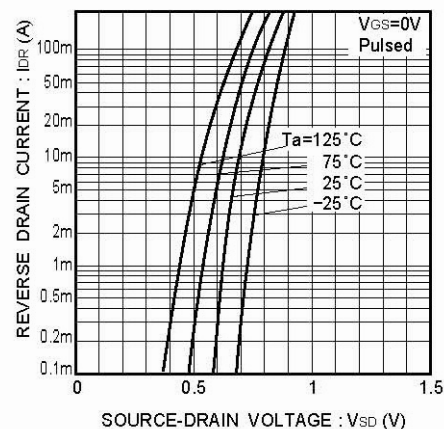


Fig.9 Reverse drain current vs. source-drain voltage (I)

CHARACTERISTIC CURVES

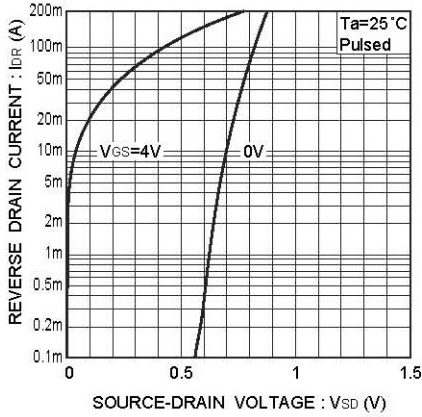


Fig.10 Reverse drain current vs. source-drain voltage (II)

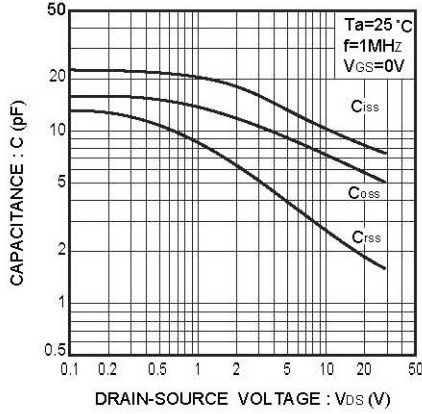


Fig.11 Typical capacitance vs. drain-source voltage

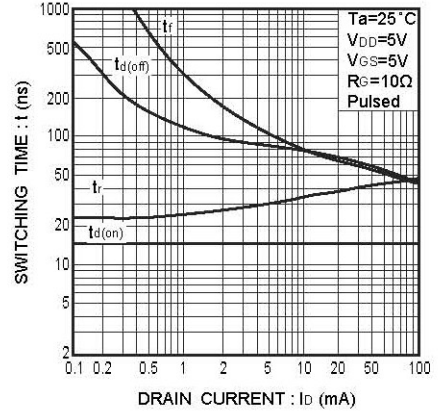


Fig.12 Switching characteristics (See Figures 13 and 14 for the measurement circuit and resultant waveforms)

Switching characteristics measurement circuit

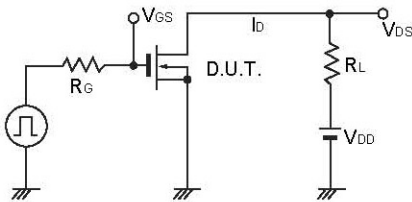


Fig.13 Switching time measurement circuit

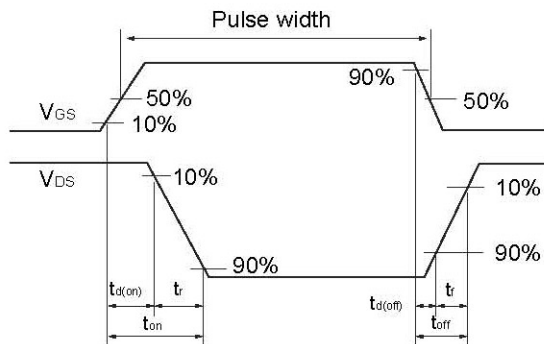


Fig.14 Switching time waveforms