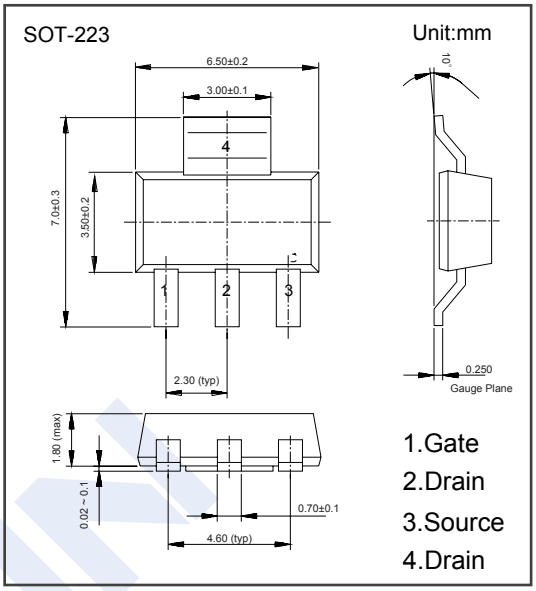
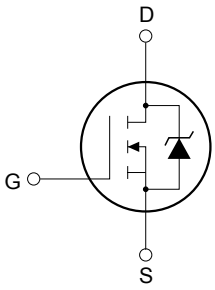
N-Channel MOSFET

STN2NF10 (KTN2NF10)



■ Features

- $V_{DS\ (V)}$ = 100V
- I_D = 2.4 A (V_{GS} = 10V)
- $R_{DS(ON)}$ < 260mΩ (V_{GS} = 10V)



■ Absolute Maximum Ratings Ta = 25℃

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	Tc=25℃	I_D	2.4	A
	Tc=100℃		1.5	
Pulsed Drain Current		I_{DM}	17	
Power Dissipation	Tc=25℃	P_D	3.3	W
Single pulse avalanche energy (Note.1)		E_{AS}	200	mJ
Peak diode recovery voltage slope (Note.2)		dv/dt	30	V/ns
Thermal Resistance.Junction- to-Ambient	t < 10sec	R_{thJA}	38	℃/W
	t > 10sec		62.5	
Junction Temperature		T_J	150	℃
Storage Temperature Range		T_{stg}	-55 to 150	

Note.1: I_{AS} = 2.4A, V_{DD} = 30V, R_g=4.7Ω, starting T_j = 25°C

Note.2: I_{SD} < 6A, di/dt < 500A/μs, V_{DD}= 80% $V_{(BR)DSS}$

N-Channel MOSFET

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■ Electrical Characteristics Ta = 25℃

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DSS}	I_D=250μA, V_{GS}=0V	100			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=100V, V_{GS}=0V			1	uA
		V_{DS}=100V, V_{GS}=0V, T_C=125℃			10	
		V_{DS}=30V, V_{GS}=0V, T_C=125℃			1	
Gate-Body Leakage Current	I_{GSS}	V_{DS}=0V, V_{GS}=±20V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}=V_{GS}, I_D=250μA	2		4	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}=10V, I_D=1.2A		230	260	mΩ
Forward Transconductance	g_{FS}	V_{DS}=15V, I_D=1.2A		2.5		S
Input Capacitance	C_{iss}	V_{GS}=0V, V_{DS}=25V, f=1MHz		280		pF
Output Capacitance	C_{oss}			45		
Reverse Transfer Capacitance	C_{rss}			20		
Total Gate Charge	Q_g	V_{GS}=10V, V_{DS}=80V, I_D=6A		10	14	nC
Gate Source Charge	Q_{gs}			2.5		
Gate Drain Charge	Q_{gd}			4		
Turn-On DelayTime	$t_{d(on)}$	V_{GS}=10V, V_{DS}=50V, I_D=2.4A,R_G=4.7Ω		6		ns
Turn-On Rise Time	t_r			10		
Turn-Off DelayTime	$t_{d(off)}$			20		
Turn-Off Fall Time	t_f			3		
Body Diode Reverse Recovery Time	t_{rr}	I_F= 6A, V_{DD}=10V, dI/dt= 100A/μs		70		nC
Body Diode Reverse Recovery Charge	Q_{rr}			175		
Reverse recovery current	I_{RRM}			5		A
Maximum Body-Diode Continuous Current	I_S				2.4	
Source-drain current (pulsed)	I_{SM}				17	
Diode Forward Voltage (Note.1)	V_{SD}	I_S=2.4A,V_{GS}=0V			1.2	V

Note.1: Pulsed: pulse duration = 300μs, duty cycle 1.5%

■ Marking

Marking	N2NF10

N-Channel MOSFET

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■ Typical Characterisitics

Figure 1. Safe operating area

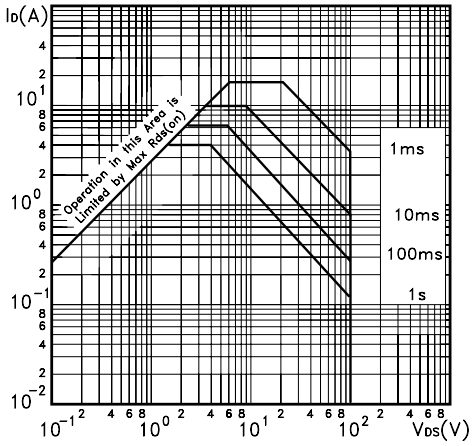


Figure 2. Thermal impedance

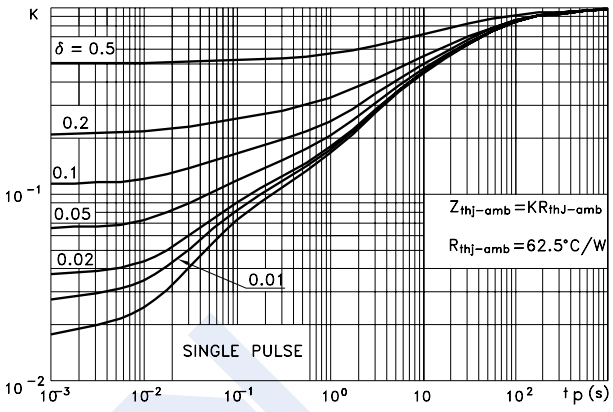


Figure 3. Output characteristics

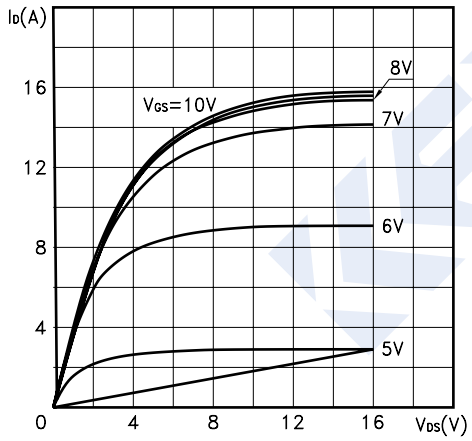


Figure 4. Transfer characteristics

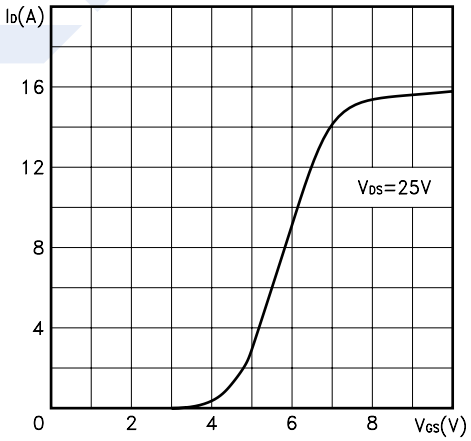


Figure 5. Transconductance

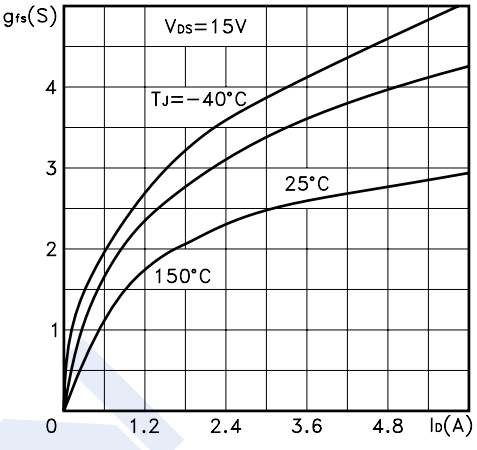
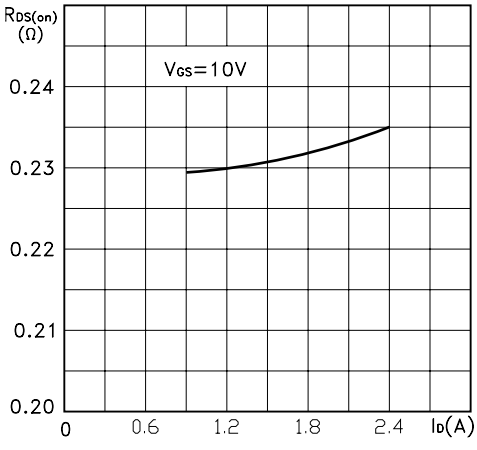


Figure 6. Static drain-source on resistance



N-Channel MOSFET

STN2NF10 (KTN2NF10)

■ Typical Characterisitics

Figure 7. Gate charge vs. gate-source voltage

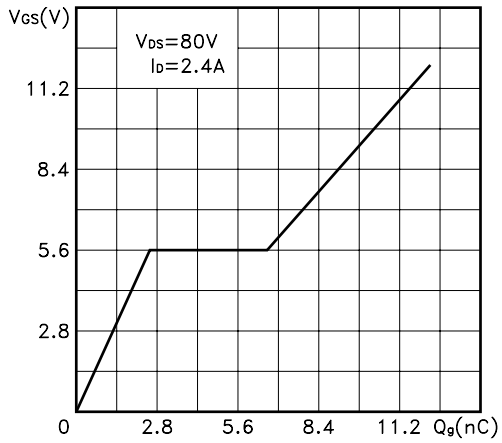


Figure 8. Capacitance variations

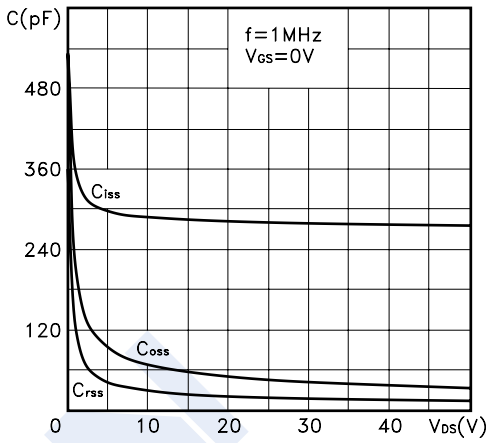


Figure 9. Normalized gate threshold voltage vs. temperature

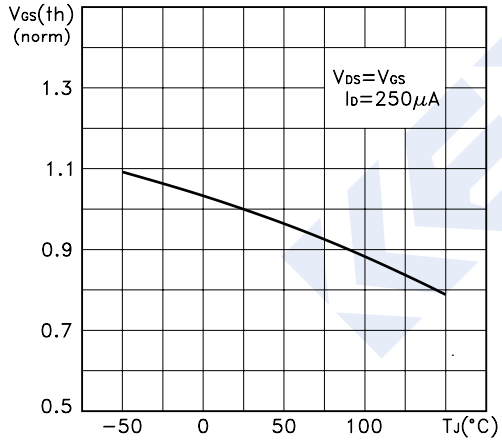


Figure 10. Normalized on resistance vs. temperature

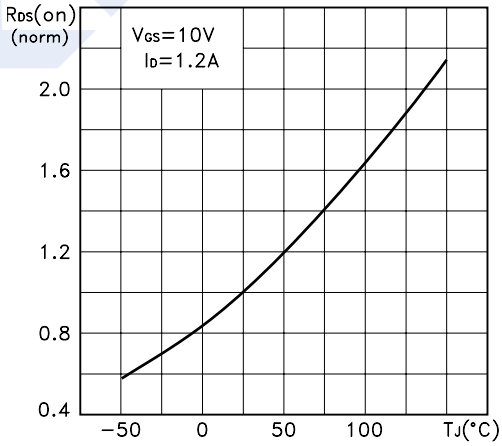


Figure 11. Source-drain diode forward characteristics

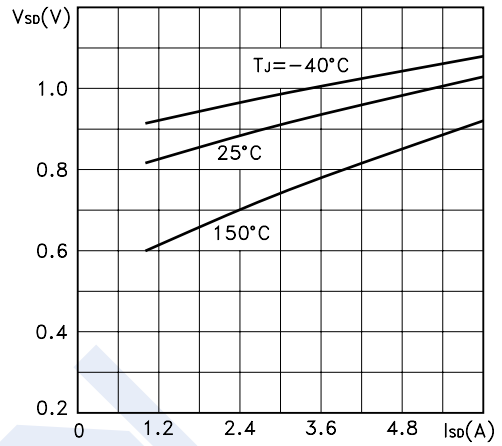
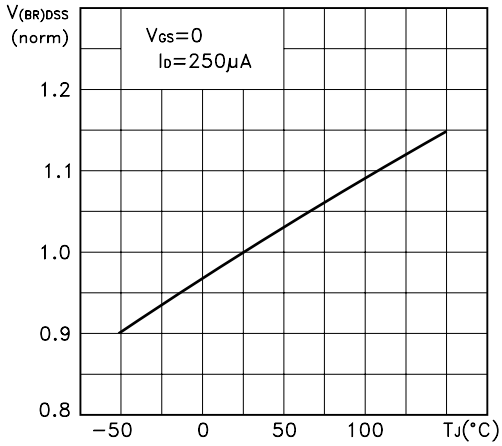


Figure 12. Normalized BV_{DSS} vs. temperature



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STN2NF10 (KTN2NF10)

■ Typical Characterisitics

Figure 13. Max drain current vs. temperature