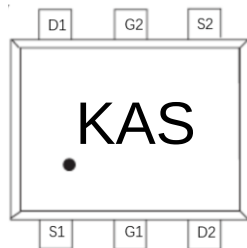


Features

- Dual N-channel MOSFET
- Low gate threshold voltage and low $R_{DS(ON)}$
- Low input capacitance and leakage
- Fast switching speed

Application

- Load Switch for Portable Devices
- DC/DC Converter



KAS: Device code

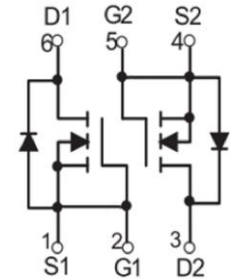
Marking and pin assignment

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
60V	0.9Ω@10V	0.3A
	1.1Ω@4.5V	



SOT-563 top view



Schematic diagram



Pb-Free



Halogen-Free

Absolute Maximum Ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Symbol	Parameter	Rating	Unit
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Common Ratings ($T_C=25^{\circ}\text{C}$ Unless Otherwise Noted)

V_{DS}	Drain-Source Breakdown Voltage	60	V
V_{GS}	Gate-Source Voltage	±20	V
T_J	Maximum Junction Temperature	150	°C
T_{STG}	Storage Temperature Range	-50 to 155	°C
I_S	Diode Continuous Forward Current	$T_C=25^{\circ}\text{C}$ 0.3	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}\text{C}$ 1.2	A
I_D	Continuous Drain Current	$T_C=25^{\circ}\text{C}$ 0.3	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}\text{C}$ 0.15	W
$R_{\theta JA}$	Thermal Resistance Junction-to-Ambient	833	°C/W

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
2N7002DT	SOT-563	KAS	3,000	45,000	180,000	7"reel

Electrical Characteristics (TJ=25℃ unless otherwise noted)						
Symbol	Parameter	Condition	Min	Typ	Max	Unit
Static Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
BV _{(BR)DSS}	Drain-Source Breakdown Voltage	V _{GS} =0V, I _D =250μA	60	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =60V, V _{GS} =0V	--	--	1	μA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±100	nA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	1.0	1.6	2.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =0.34A	--	0.9	2.5	Ω
		V _{GS} =5V, I _D =0.2A	--	1.1	3.0	Ω
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	--	27	--	pF
C _{OSS}	Output Capacitance		--	2.75	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	2	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =30V, I _D =0.34A, V _{GS} =10V	--	1.7	--	nC
Q _{gs}	Gate-Source Charge		--	0.57	--	nC
Q _{gd}	Gate-Drain Charge		--	0.3	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =30V, I _D =0.34A, V _{GS} =10V, R _G =3Ω	--	4	--	nS
t _r	Turn-on Rise Time		--	19	--	nS
t _{d(off)}	Turn-Off Delay Time		--	12	--	nS
t _f	Turn-off fall Time		--	24	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25℃, Is=0.3A	--	--	1.2	V

Typical Operating Characteristics

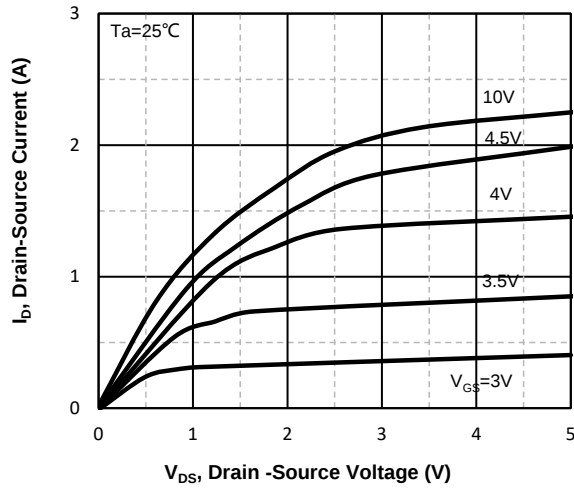


Fig1. Typical Output Characteristics

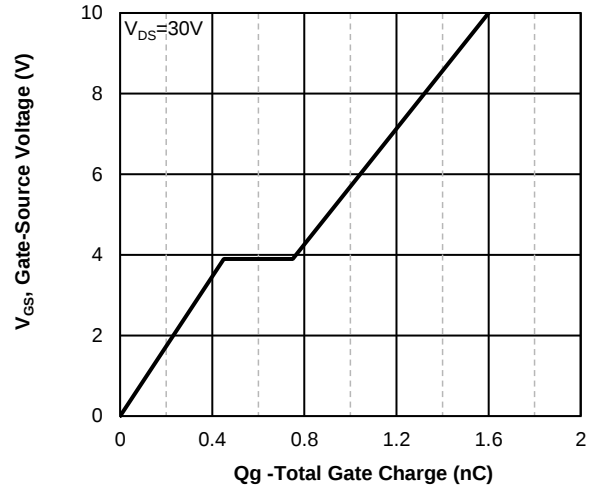


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

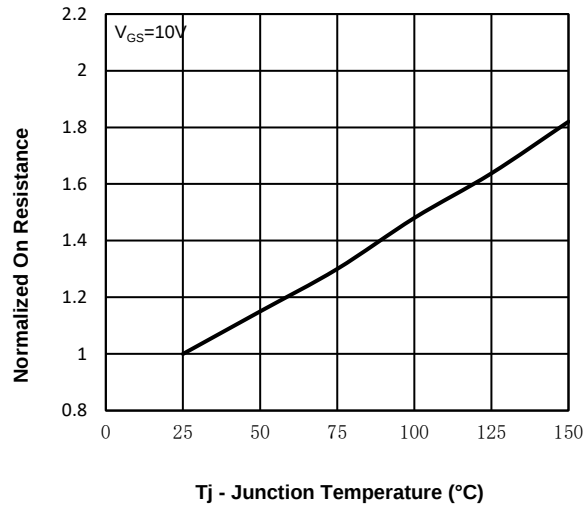


Fig3. Normalized On-Resistance Vs. Temperature

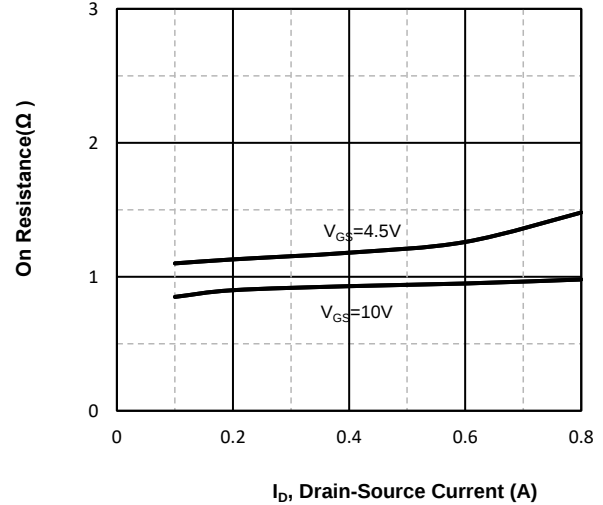


Fig4. On-Resistance Vs. Drain-Source Current

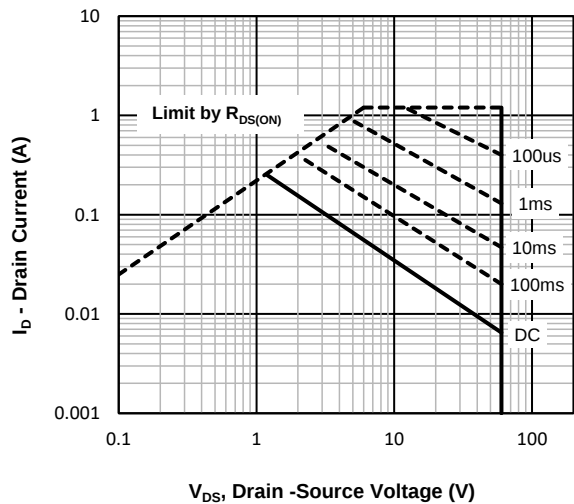


Fig5. Maximum Safe Operating Area

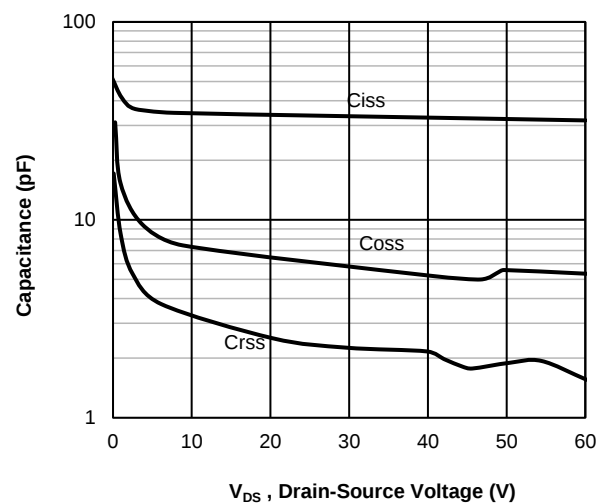
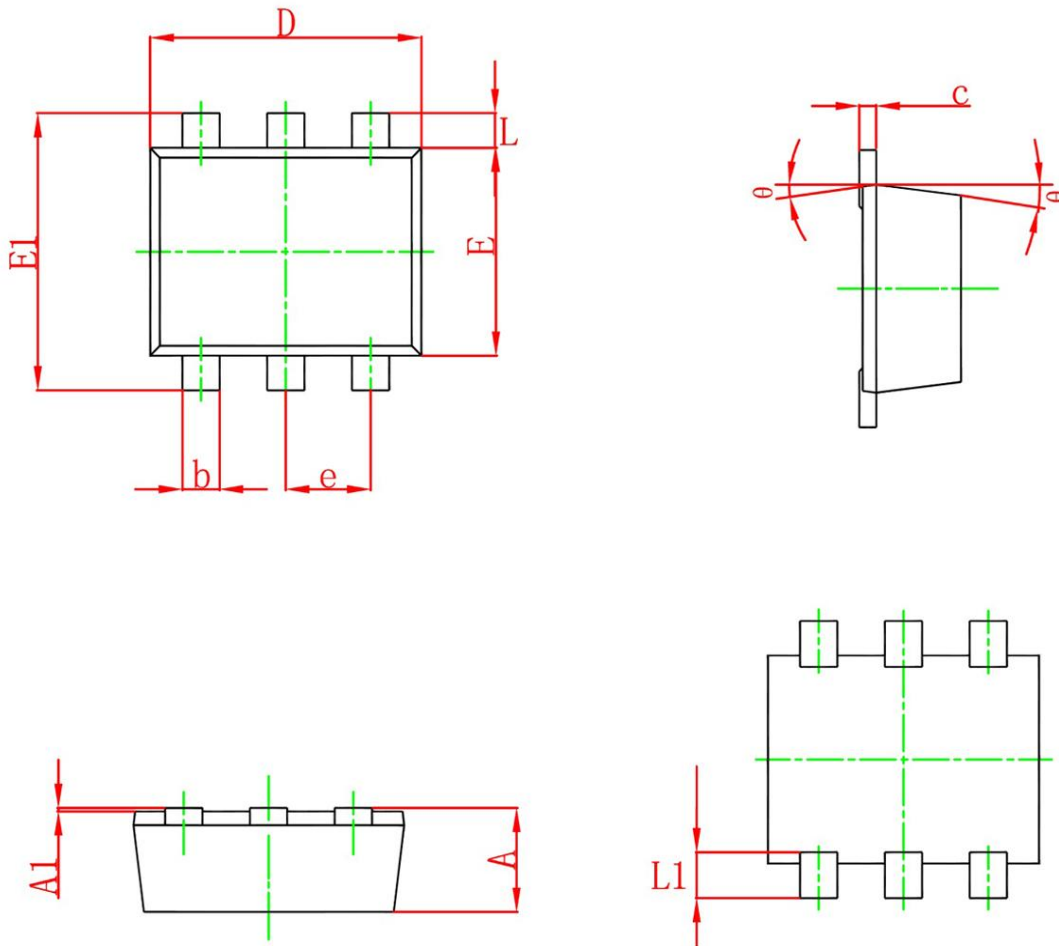


Fig6 Typical Capacitance Vs. Drain-Source Voltage

SOT-563 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.500	0.600	0.020	0.024
A1	0.000	0.050	0.000	0.002
e	0.450	0.550	0.018	0.022
c	0.090	0.180	0.004	0.007
D	1.500	1.700	0.059	0.067
b	0.170	0.270	0.007	0.011
E	1.100	1.300	0.043	0.051
E1	1.500	1.700	0.059	0.067
L	0.100	0.300	0.004	0.012
L1	0.200	0.400	0.008	0.016
θ	10° REF.		10° REF.	