

Features

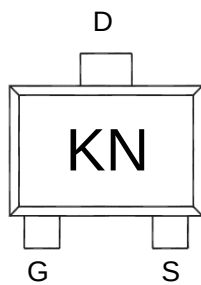
- Low on-resistance
- Fast switching speed
- Easily designed drive circuits
- Easy to parallel Portable equipment

Application

- Interfacing, Switching

Product Summary

V_{DS}	$R_{DS(ON)}$ TYP	I_D
50V	1.6Ω@10V	0.2A
	2.0Ω@4.5V	

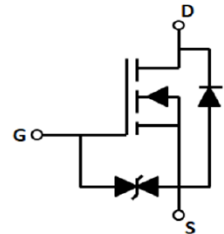


KN: Device code
N: Code

Marking and pin assignment



SOT-723 top view



Schematic diagram



Pb-Free



Halogen-Free

Absolute Maximum Ratings (TA=25°C unless otherwise noted)

Symbol	Parameter	Rating	Unit
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Common Ratings (TC=25°C Unless Otherwise Noted)

V _{DS}	Drain-Source Breakdown Voltage		50	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	Tc=25°C	0.2	A

Mounted on Large Heat Sink

I_{DM}	Pulse Drain Current Tested	$T_C=25^{\circ}C$	0.78	A
I_D	Continuous Drain Current	$T_C=25^{\circ}C$	0.2	A
P_D	Maximum Power Dissipation	$T_C=25^{\circ}C$	0.15	W
ESD	Gate-Source ESD Rating (HBM, Method 3015)		2000	V

Ordering Information (Example)

Type	Package	Marking	Minimum Package(pcs)	Inner Box Quantity(pcs)	Outer Carton Quantity(pcs)	Delivery Mode
BSS138KM	SOT-723	KN	8,000	120,000	480,000	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	50	--	--	V
I _{DSS}	Zero Gate Voltage Drain Current	V _{DS} =50V, V _{GS} =0V	--	--	1	uA
I _{GSS}	Gate-Body Leakage Current	V _{GS} =±20V, V _{DS} =0V	--	--	±10	uA
V _{GS(th)}	Gate Threshold Voltage	V _{DS} =V _{GS} , I _D =250μA	0.8	1.1	1.5	V
R _{DS(on)}	Drain-Source On-State Resistance	V _{GS} =10V, I _D =10mA	--	1.6	5.0	Ω
		V _{GS} =4.5V, I _D =1mA	--	2.0	6.0	Ω
Dynamic Electrical Characteristics @ TJ = 25℃ (unless otherwise stated)						
C _{ISS}	Input Capacitance	V _{DS} =30V, V _{GS} =0V, f=1MHz	--	18	--	pF
C _{OSS}	Output Capacitance		--	12	--	pF
C _{RSS}	Reverse Transfer Capacitance		--	7	--	pF
Switching Characteristics						
Q _g	Total Gate Charge	V _{DS} =50V, I _D =0.2A, V _{GS} =10V	--	1.7	--	nC
t _{d(on)}	Turn-on Delay Time	V _{DD} =50V, I _D =0.2A, V _{GS} =4.5V, R _G =10Ω	--	4.8	--	nS
t _{d(off)}	Turn-Off Delay Time		--	18	--	nS
t _{rr}	Reverse recovery Time	V _{GS} =0V, I _S =100mA, V _R =25V, di _S /dt=-100A/μs	--	31	--	nS
Source- Drain Diode Characteristics						
V _{SD}	Forward on voltage	Tj=25℃, I _S =0.2A	--	--	1.2	V

Typical Operating Characteristics

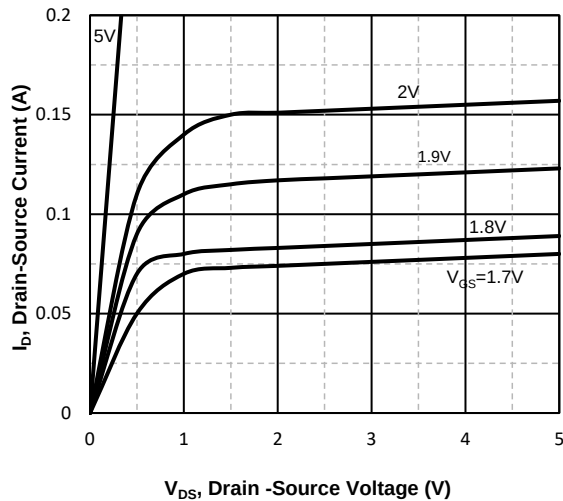


Fig1. Typical Output Characteristics

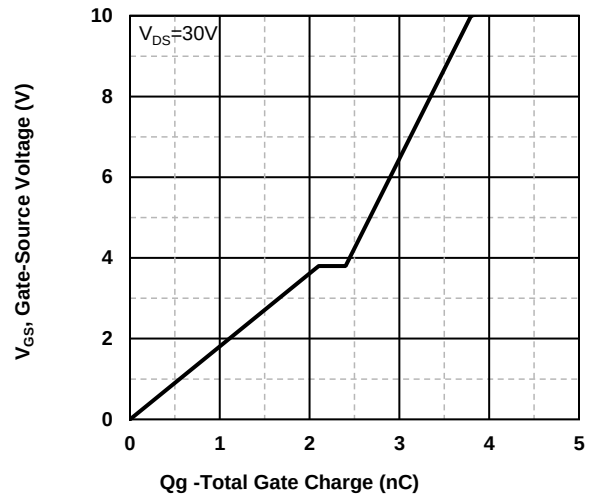


Fig2. Typical Gate Charge Vs. Gate-Source Voltage

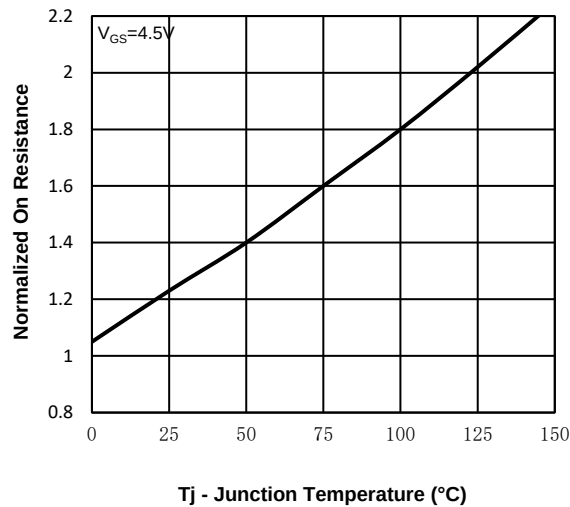


Fig3. Normalized On-Resistance Vs. Temperature

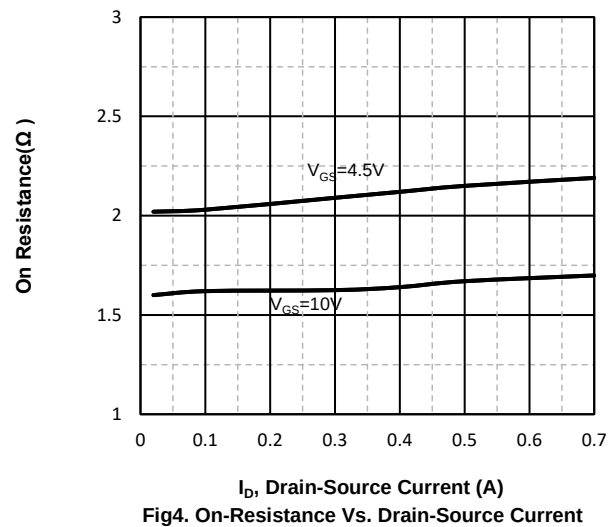


Fig4. On-Resistance Vs. Drain-Source Current

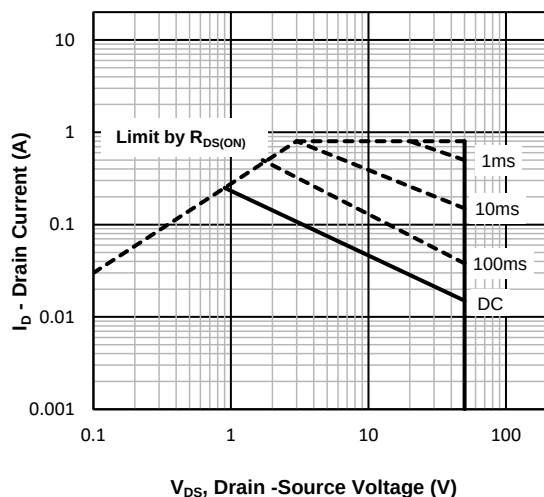


Fig5. Maximum Safe Operating Area

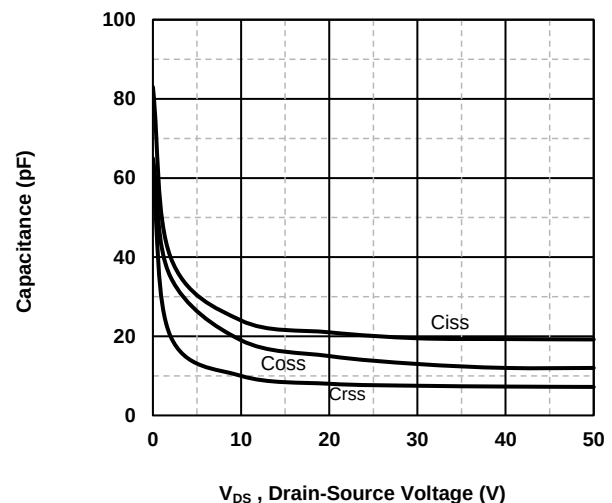
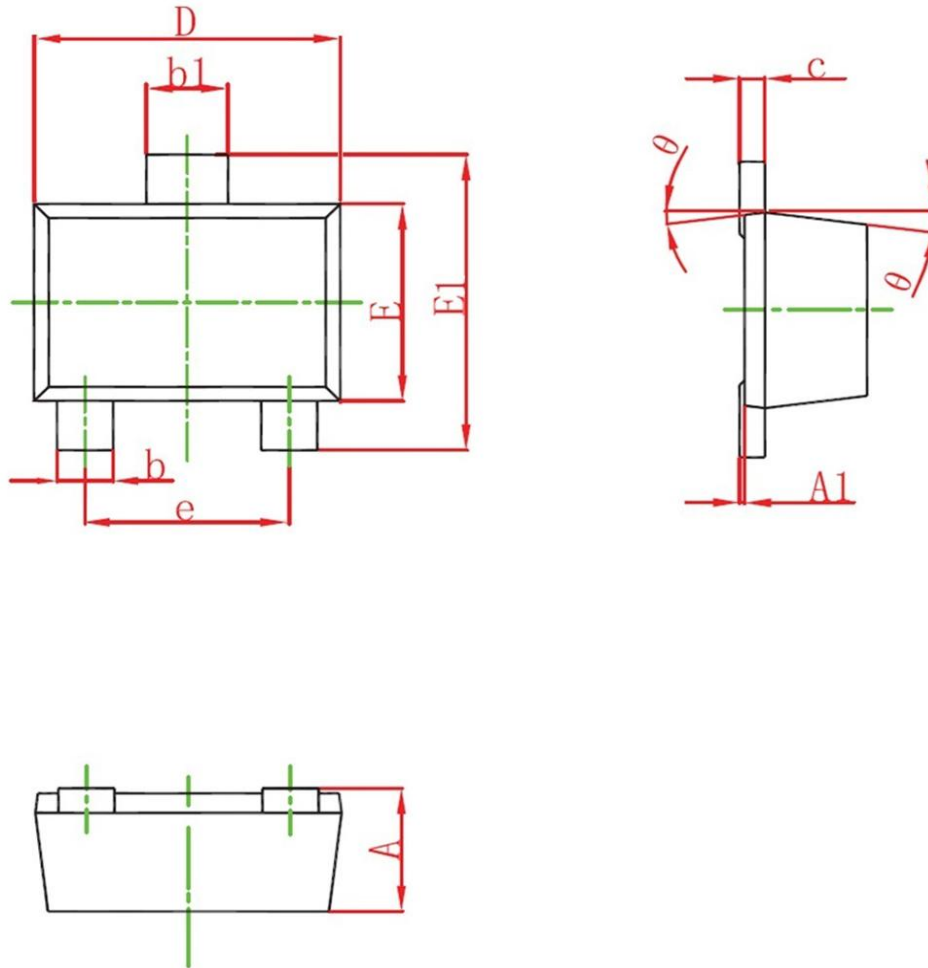


Fig6 Typical Capacitance Vs. Drain-Source

SOT-723 Package information



Symbol	Dimensions in Millimeters(mm)		Dimensions In Inches	
	Min	Max	Min	Max
A	0.320	0.400	0.012	0.016
A1	0.000	0.050	0.000	0.002
b	0.170	0.270	0.006	0.010
b1	0.270	0.370	0.010	0.014
c	0.080	0.150	0.003	0.006
D	1.150	1.250	0.046	0.050
E	0.750	0.850	0.030	0.034
E1	1.150	1.250	0.046	0.050
e	0.800TYP		0.020TYP	
θ	7°REF		7°REF	