

MOS FIELD EFFECT TRANSISTOR

2SK2158

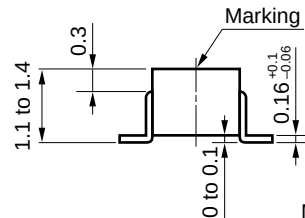
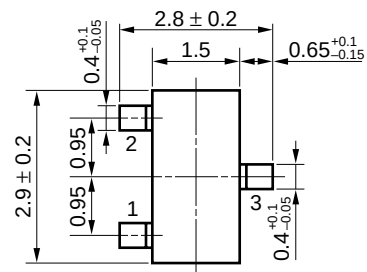
N-CHANNEL MOS FET FOR HIGH-SPEED SWITCHING

The 2SK2158 is an N-channel vertical type MOS FET featuring an operating voltage as low as 1.5 V. Because it can be driven on a low voltage and it is not necessary to consider driving current, the 2SK2158 is suitable for use in low-voltage portable systems such as headphone stereo sets and camcorders.

FEATURES

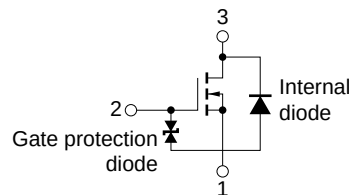
- Capable of drive gate with 1.5 V
- Because of high input impedance, there is no need to consider driving current.
- Bias resistance can be omitted, enabling reduction in total number of parts.

PACKAGE DIMENSIONS (in millimeters)



Marking: G23

EQUIVALENT CIRCUIT



PIN CONNECTION

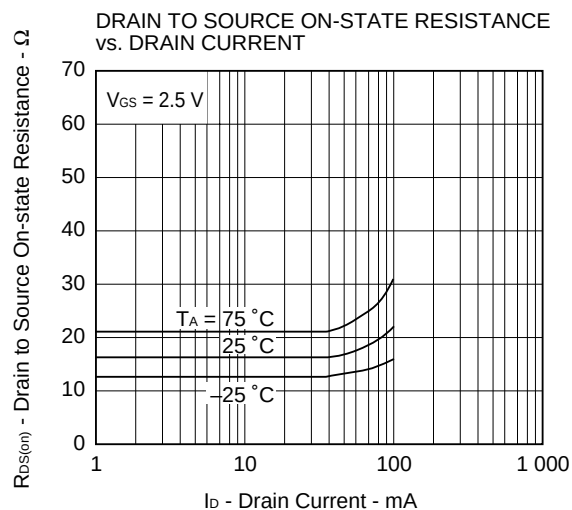
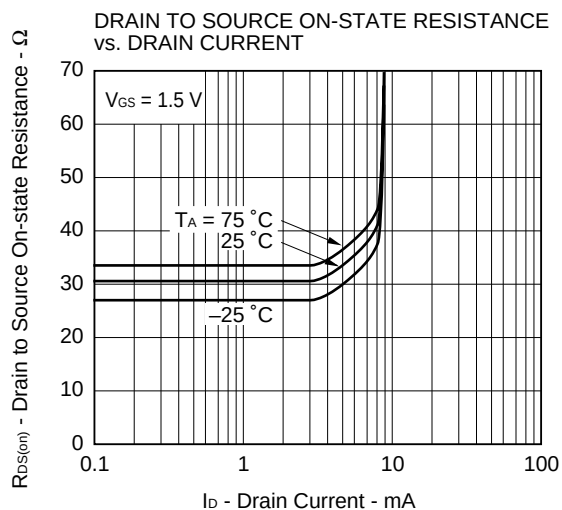
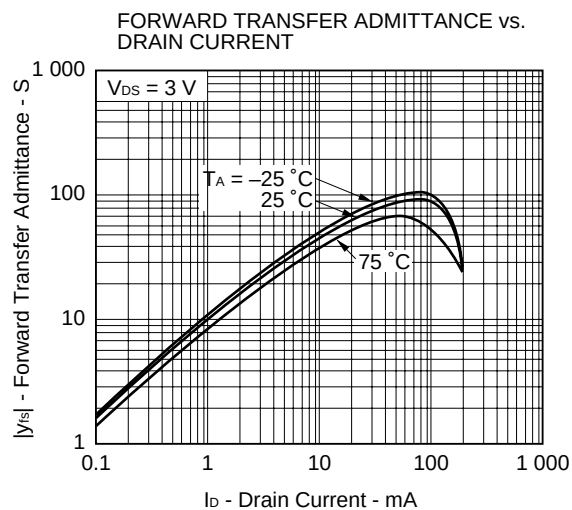
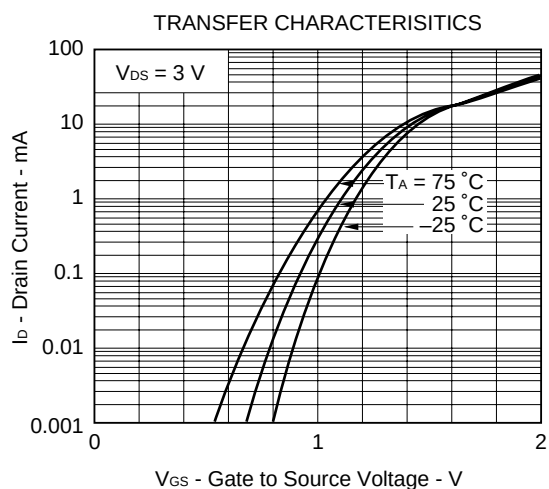
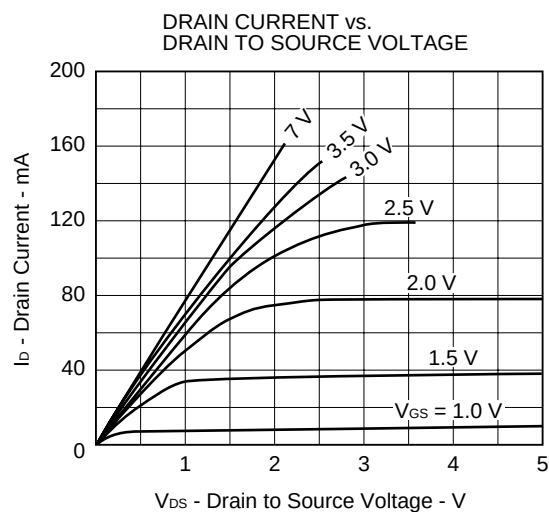
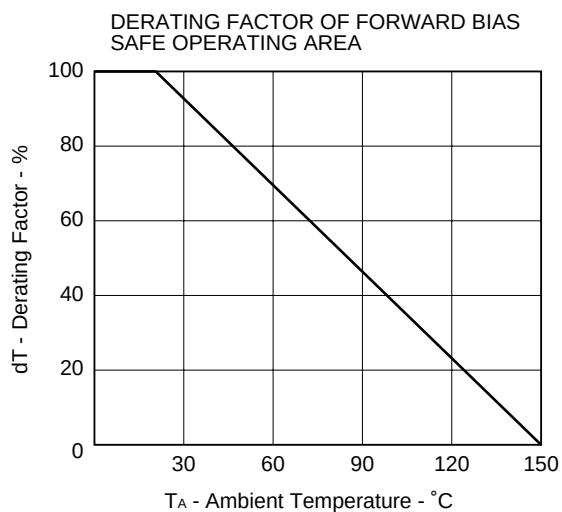
1. Source (S)
2. Gate (G)
3. Drain (D)

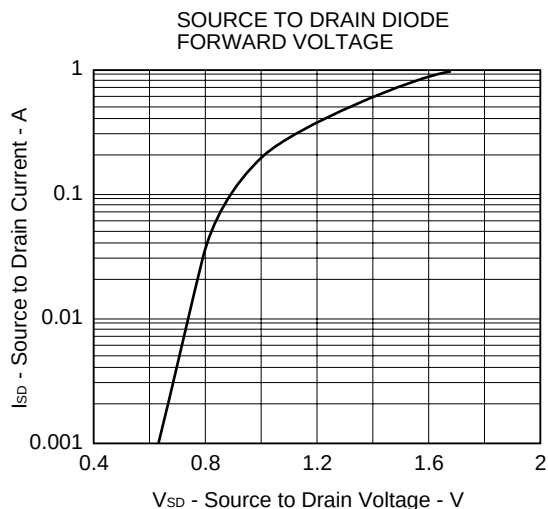
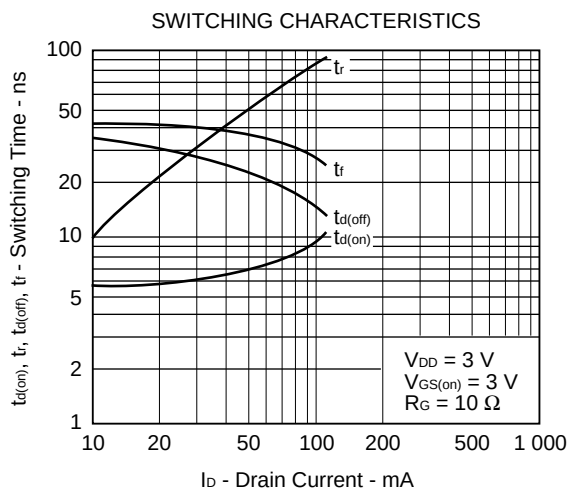
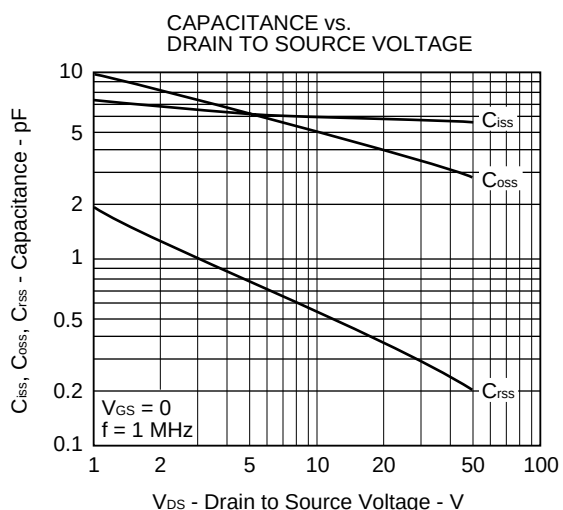
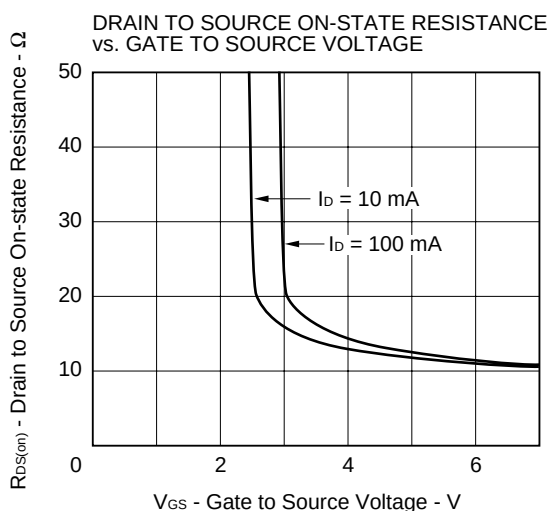
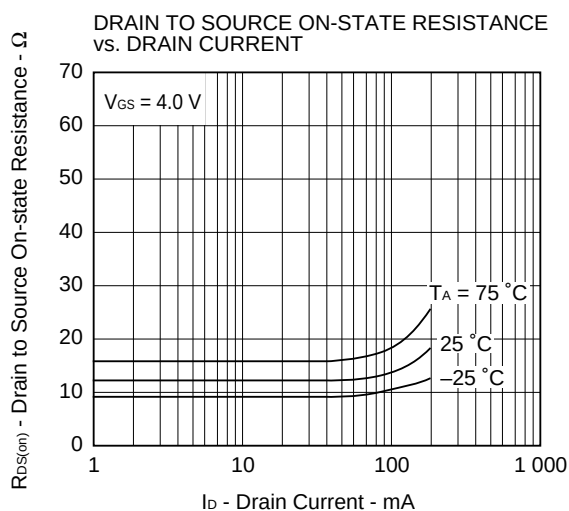
ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$)

PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Drain to Source Voltage	V_{DS}	$V_{GS} = 0$	50	V
Gate to Source Voltage	V_{GS}	$V_{DS} = 0$	± 7.0	V
Drain Current (DC)	$I_{D(DC)}$		± 0.1	A
Drain Current (pulse)	$I_{D(pulse)}$	$PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50 \%$	± 0.2	A
Total Power Dissipation	P_T		200	mW
Channel Temperature	T_{ch}		150	$^\circ\text{C}$
Storage Temperature	T_{stg}		-55 to +150	$^\circ\text{C}$

ELECTRICAL CHARACTERISTICS (T_A = 25 °C)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Drain Cut-off Current	I _{DSS}	V _{DS} = 50 V, V _{GS} = 0			1.0	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±7.0 V, V _{DS} = 0			±3.0	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 3 V, I _D = 1.0 μA	0.5	0.7	1.1	V
Forward Transfer Admittance	y _{fs}	V _{DS} = 3 V, I _D = 10 mA	20			mS
Drain to Source On-state Resistance	R _{DS(on)1}	V _{GS} = 1.5 V, I _D = 1.0 mA		32	50	Ω
Drain to Source On-state Resistance	R _{DS(on)2}	V _{GS} = 2.5 V, I _D = 10 mA		16	20	Ω
Drain to Source On-state Resistance	R _{DS(on)3}	V _{GS} = 4.0 V, I _D = 10 mA		12	15	Ω
Input Capacitance	C _{iss}	V _{DS} = 3 V, V _{GS} = 0 f = 1.0 MHz		6		pF
Output Capacitance	C _{oss}			8		pF
Reverse Transfer Capacitance	C _{rss}			1		pF
Turn-On Delay Time	t _{d(on)}	V _{DD} = 3 V, I _D = 20 mA V _{GS(on)} = 3 V, R _G = 10 Ω R _L = 150 Ω		9		ns
Rise Time	t _r			48		ns
Turn-Off Delay Time	t _{d(off)}			21		ns
Fall Time	t _f			31		ns

TYPICAL CHARACTERISTICS ($T_A = 25^\circ\text{C}$)



REFERENCE

Document Name	Document No.
NEC semiconductor device reliability/quality control system	TEI-1202
Quality grade on NEC semiconductor devices	IEI-1209
Semiconductor device mounting technology manual	C10535E
Guide to quality assurance for semiconductor devices	MEI-1202
Semiconductor selection guide	X10679E

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Anti-radioactive design is not implemented in this product.