

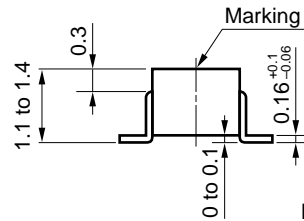
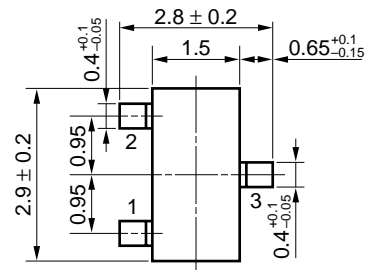
N-CHANNEL MOS FET  
FOR HIGH-SPEED SWITCHING

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

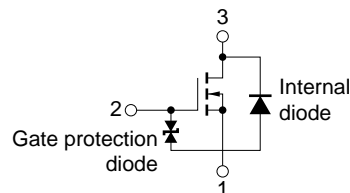
- Capable of drive gate with 1.5 V
- Because of high input impedance, there is no need to consider driving current.
- Bias resistance can be omitted, enabling reduction in total number of parts.

PACKAGE DIMENSIONS  
(in millimeters)



Marking: G23

EQUIVALENT CIRCUIT



PIN CONNECTION

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

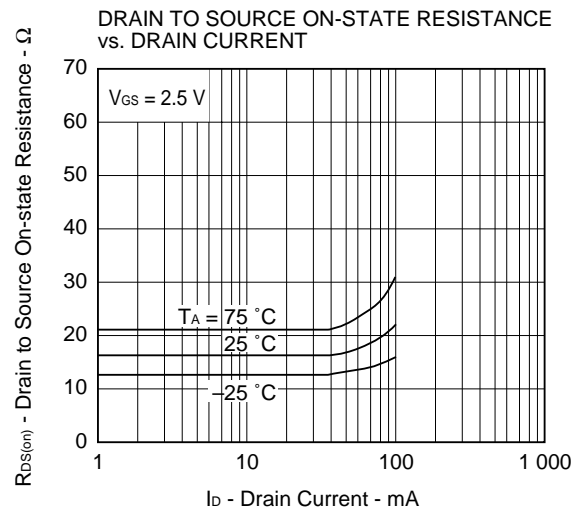
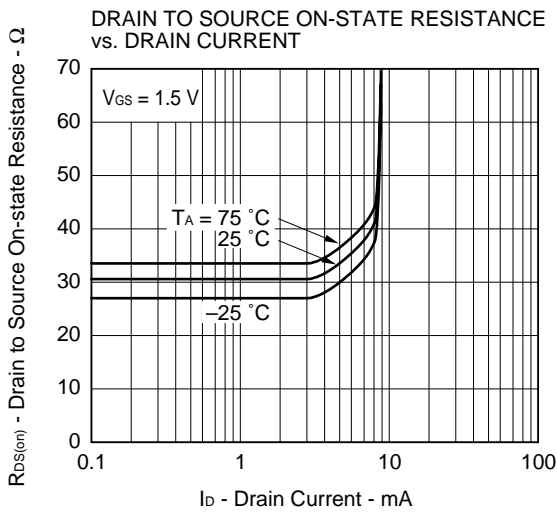
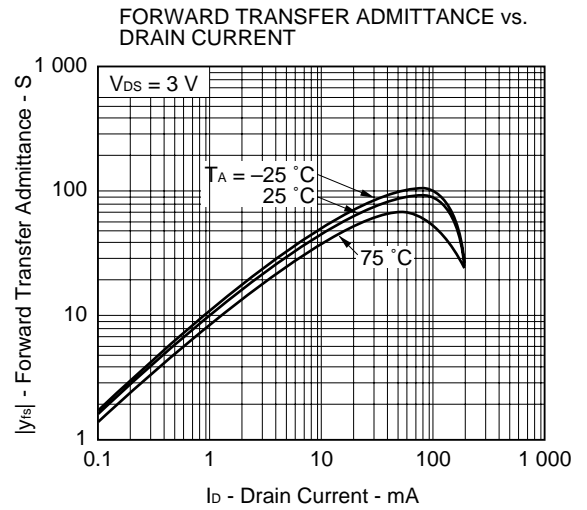
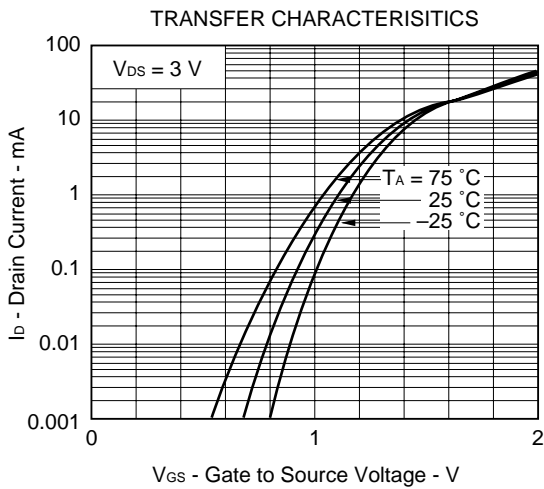
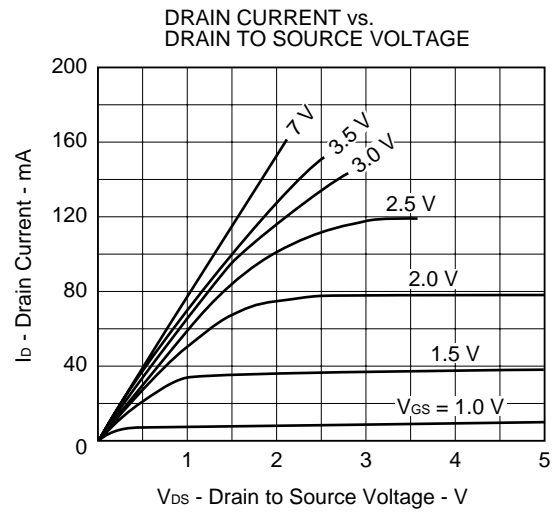
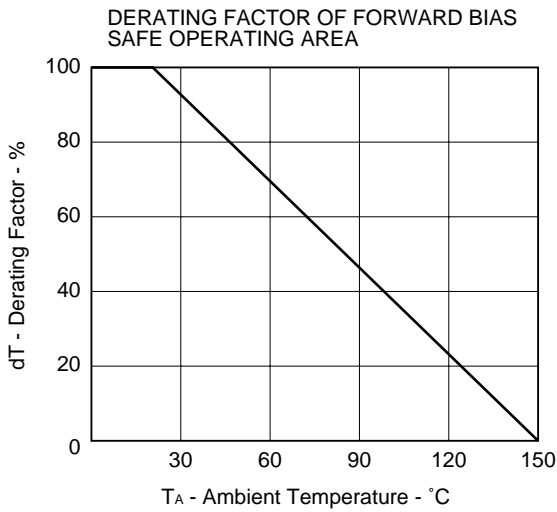
ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25 °C)

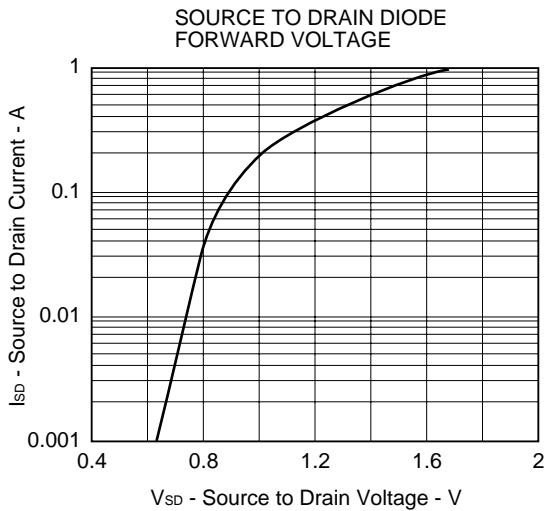
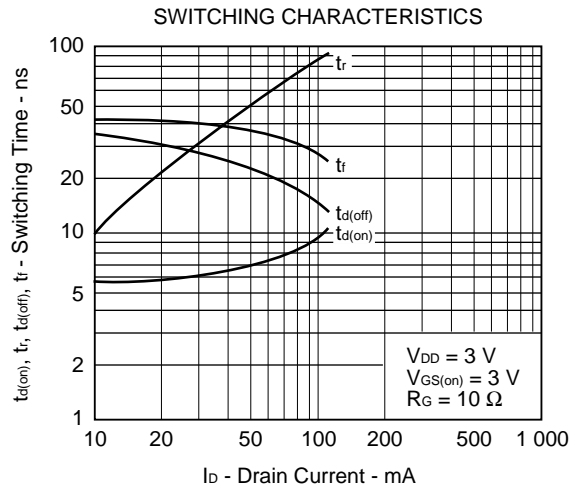
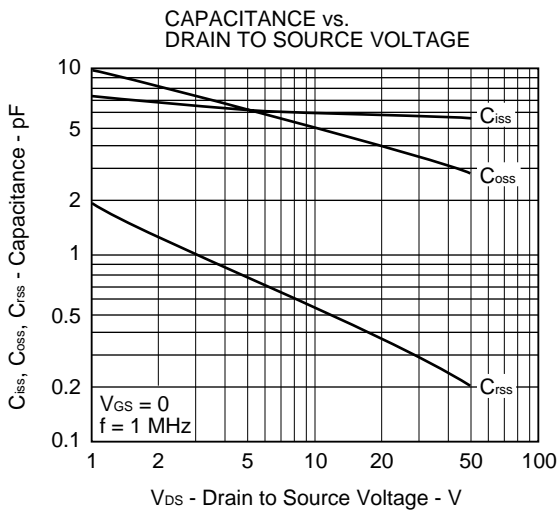
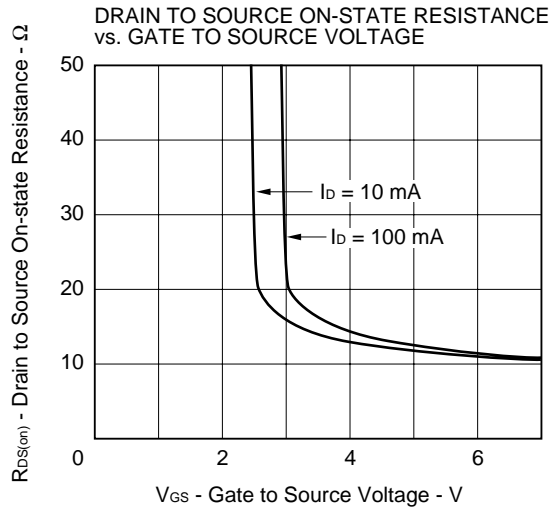
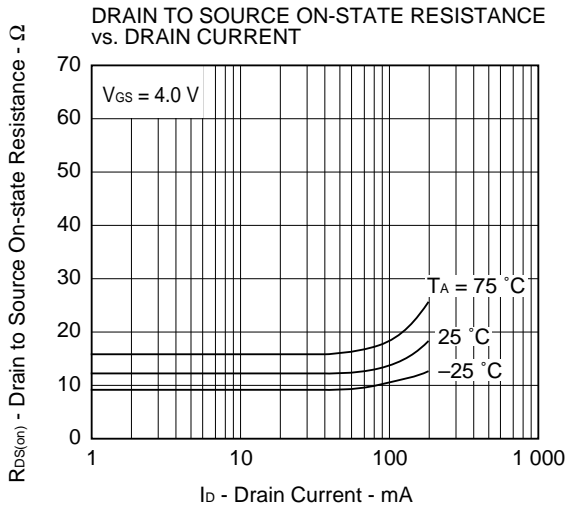
PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Drain to Source Voltage	V <sub>DSS</sub>	V <sub>GS</sub> = 0	50	V
Gate to Source Voltage	V <sub>GSS</sub>	V <sub>DS</sub> = 0	±7.0	V
Drain Current (DC)	I <sub>D(DC)</sub>		±0.1	A
Drain Current (pulse)	I <sub>D(pulse)</sub>	PW ≤ 10 ms, Duty Cycle ≤ 50 %	±0.2	A
Total Power Dissipation	P <sub>T</sub>		200	mW
Channel Temperature	T <sub>ch</sub>		150	°C
Storage Temperature	T <sub>stg</sub>		-55 to +150	°C

**ELECTRICAL CHARACTERISTICS (T<sub>A</sub> = 25 °C)**

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

TYPICAL CHARACTERISTICS (T<sub>A</sub> = 25 °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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Specific: Aircrafts, aerospace equipment, submersible repeaters, nuclear reactor control systems, life support systems or medical equipment for life support, etc.

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Anti-radioactive design is not implemented in this product.