

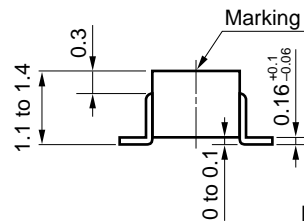
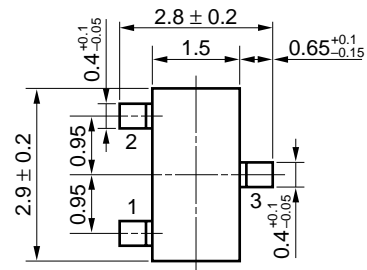
N-CHANNEL MOS FET
FOR HIGH-SPEED SWITCHING

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.

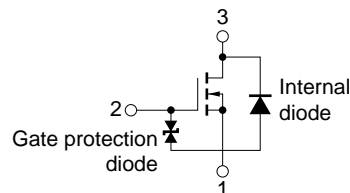
FEATURES

- 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)



EQUIVALENT CIRCUIT



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

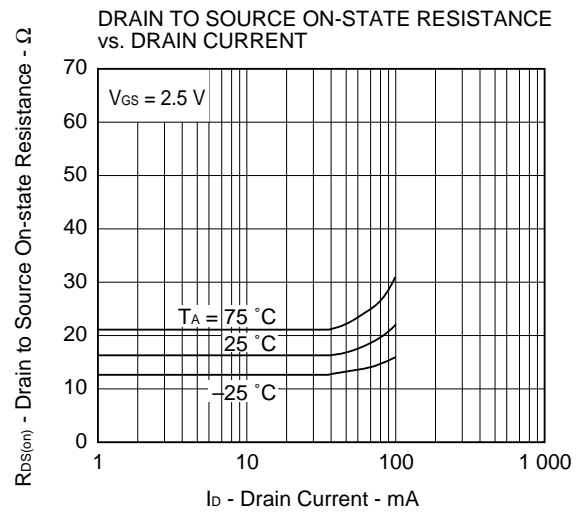
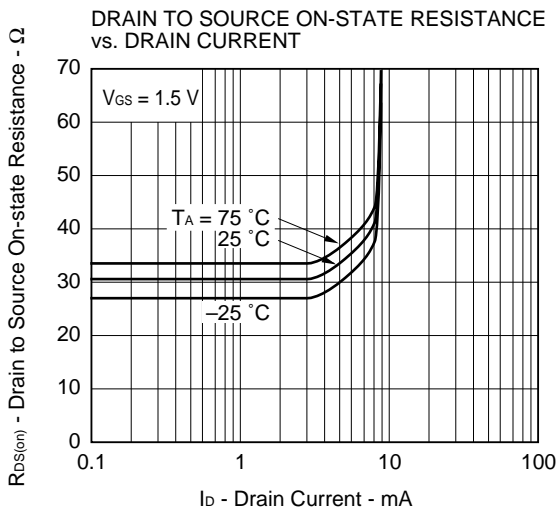
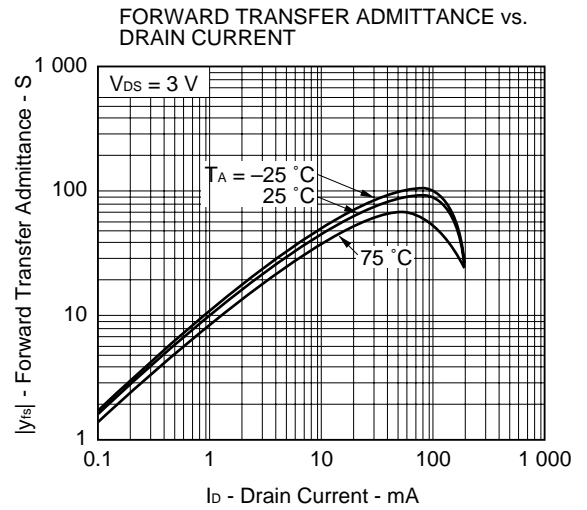
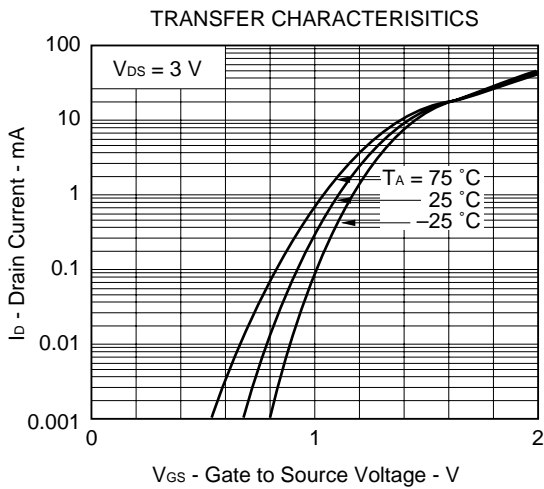
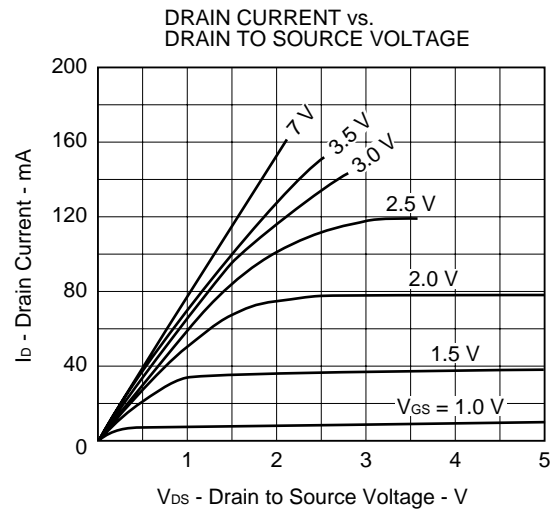
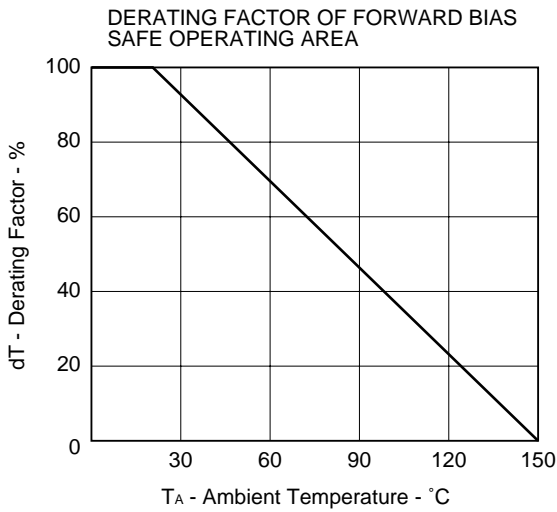
ABSOLUTE MAXIMUM RATINGS (T_A = 25 °C)

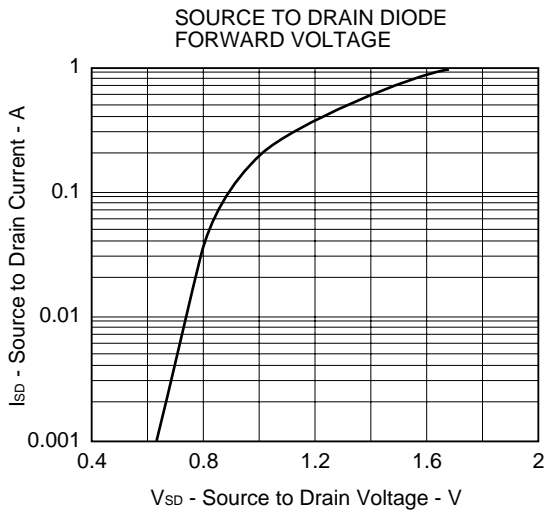
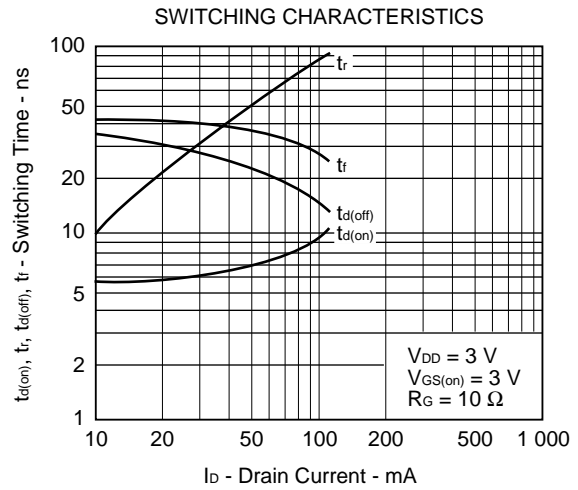
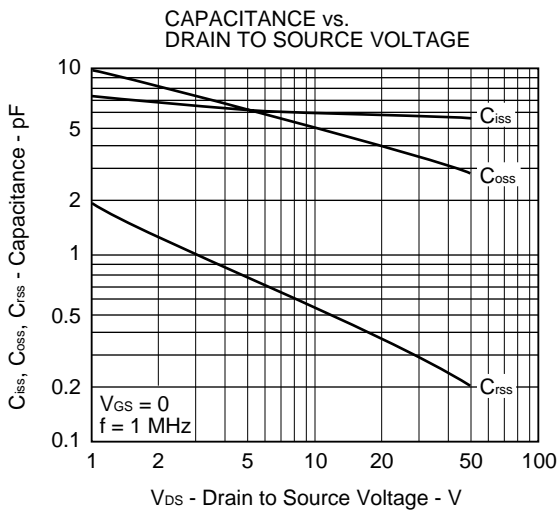
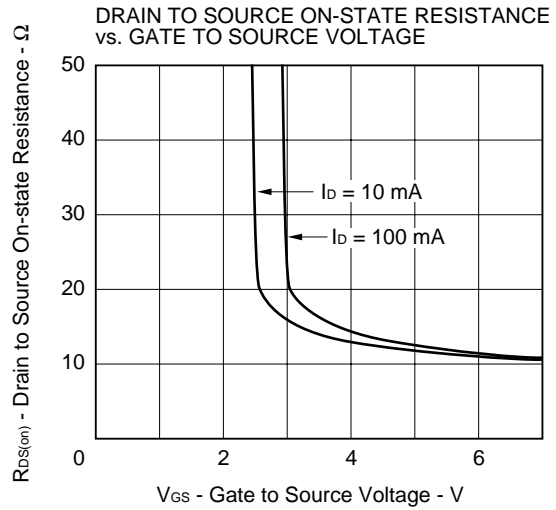
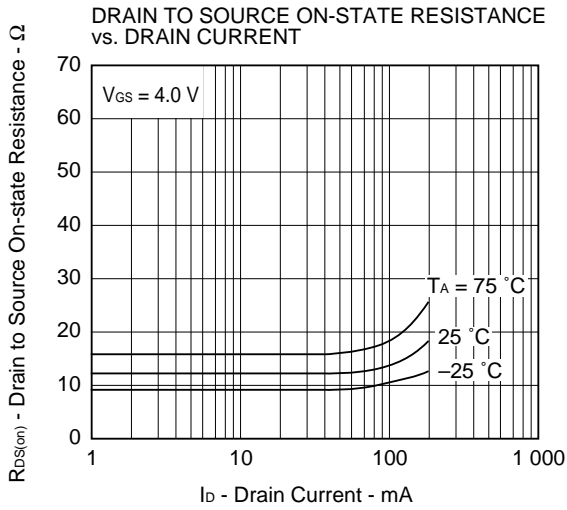
PARAMETER	SYMBOL	TEST CONDITIONS	RATINGS	UNIT
Drain to Source Voltage	V _{DSS}	V _{GS} = 0	50	V
Gate to Source Voltage	V _{GSS}	V _{DS} = 0	±7.0	V
Drain Current (DC)	I _{D(DC)}		±0.1	A
Drain Current (pulse)	I _{D(pulse)}	PW ≤ 10 ms, Duty Cycle ≤ 50 %	±0.2	A
Total Power Dissipation	P _T		200	mW
Channel Temperature	T _{ch}		150	°C
Storage Temperature	T _{stg}		-55 to +150	°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		6		pF
Output Capacitance	C _{oss}	f = 1.0 MHz		8		pF
Reverse Transfer Capacitance	C _{rss}			1		pF
Turn-On Delay Time	t _{d(on)}	V _{DD} = 3 V, I _D = 20 mA		9		ns
Rise Time	t _r	V _{GS(on)} = 3 V, R _G = 10 Ω		48		ns
Turn-Off Delay Time	t _{d(off)}	R _L = 150 Ω		21		ns
Fall Time	t _f			31		ns

TYPICAL CHARACTERISTICS (T_A = 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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Special: Transportation equipment (automobiles, trains, ships, etc.), traffic control systems, anti-disaster systems, anti-crime systems, safety equipment and medical equipment (not specifically designed for life support)

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The quality grade of NEC devices in “Standard” unless otherwise specified in NEC's Data Sheets or Data Books. If customers intend to use NEC devices for applications other than those specified for Standard quality grade, they should contact NEC Sales Representative in advance.

Anti-radioactive design is not implemented in this product.