

SWITCHING
N-CANNEL MOS FET

DESCRIPTION

The 2SK1584 is a switching device which can be driven directly by a 5 V power source.

The 2SK1584 features a low on-state resistance and excellent switching characteristics, and is suitable for applications such as actuator driver.

FEATURES

- Can be driven by a 5 V power source.
- Low on-state resistance
 $R_{DS(on)1} = 2.0 \Omega \text{ MAX. (} V_{GS} = 4.0 \text{ V, } I_D = 0.3 \text{ A)}$
 $R_{DS(on)2} = 1.5 \Omega \text{ MAX. (} V_{GS} = 10 \text{ V, } I_D = 0.3 \text{ A)}$

★ ORDERING INFORMATION

PART NUMBER	PACKAGE
2SK1584	SC-62 (Power Mini Mold)

Marking: NH

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

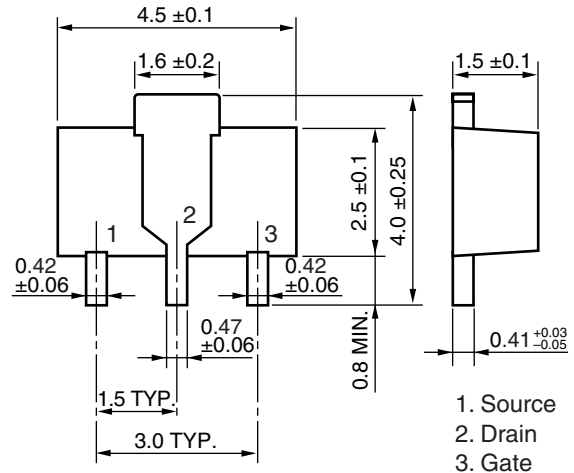
Drain to Source Voltage ($V_{GS} = 0 \text{ V}$)	V_{DSS}	30	V
Gate to Source Voltage ($V_{DS} = 0 \text{ V}$)	V_{GSS}	± 20	V
Drain Current (DC) ($T_C = 25^\circ\text{C}$)	$I_{D(DC)}$	± 500	mA
Drain Current (pulse) ^{Note1}	$I_{D(pulse)}$	± 1.0	A
Total Power Dissipation ($T_A = 25^\circ\text{C}$) ^{Note2}	P_T	2.0	W
Channel Temperature	T_{ch}	150	$^\circ\text{C}$
Storage Temperature	T_{stg}	-55 to +150	$^\circ\text{C}$

Notes 1. $PW \leq 10 \text{ ms}$, Duty Cycle $\leq 50\%$

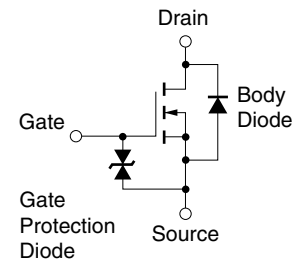
2. Mounted on ceramic substrate of $16 \text{ cm}^2 \times 0.7 \text{ mm}$

Remark The diode connected between the gate and source of the transistor serves as a protector against ESD. When this device actually used, an additional protection circuit is externally required if a voltage exceeding the rated voltage may be applied to this device.

PACKAGE DRAWING (Unit: mm)



EQUIVALENT CIRCUIT



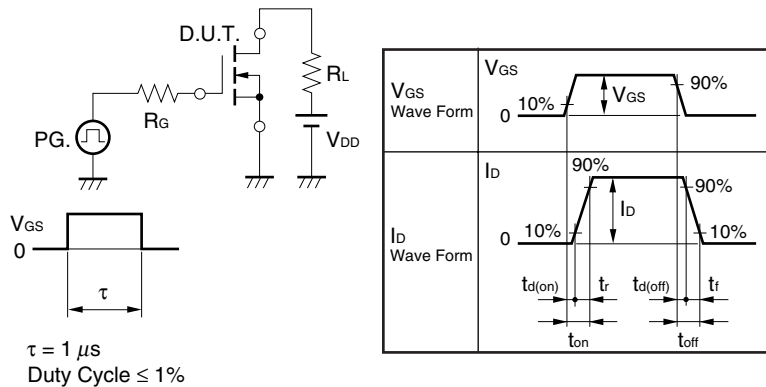
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★ ELECTRICAL CHARACTERISTICS (T_A = 25°C)

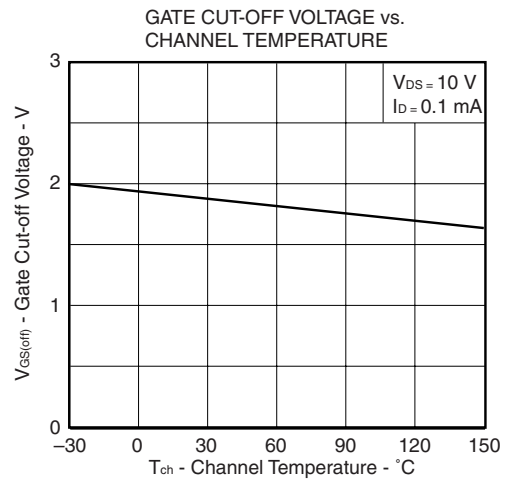
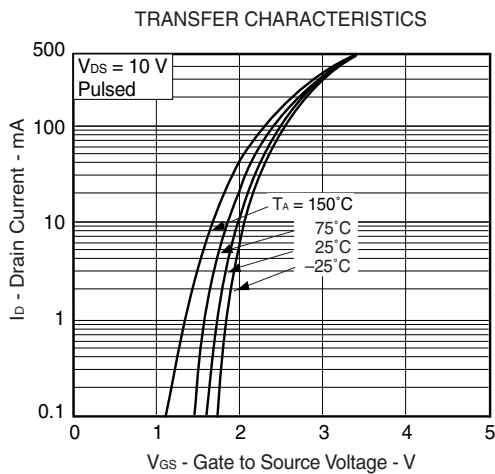
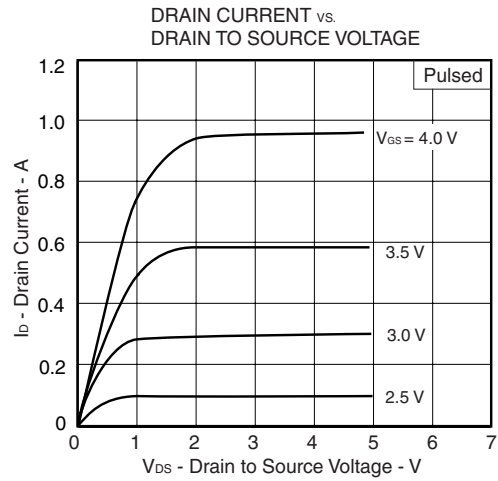
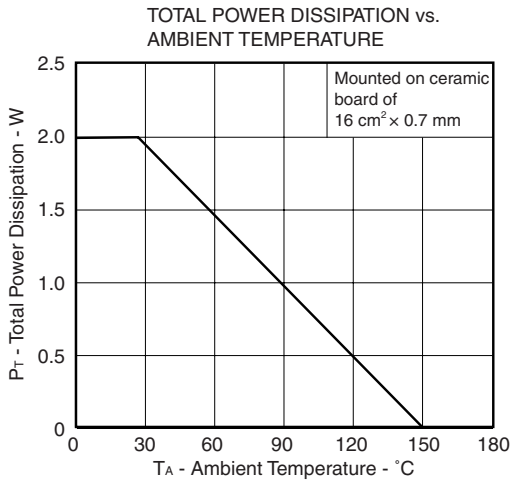
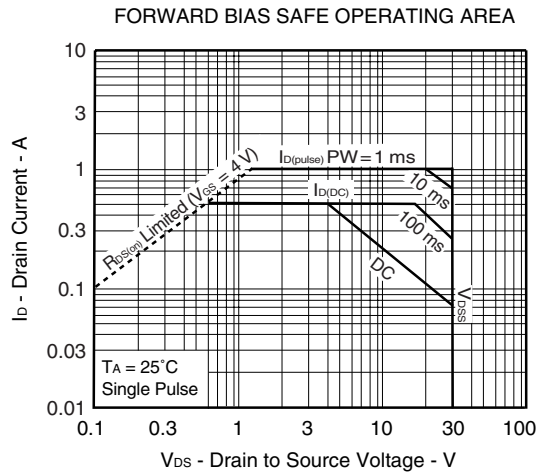
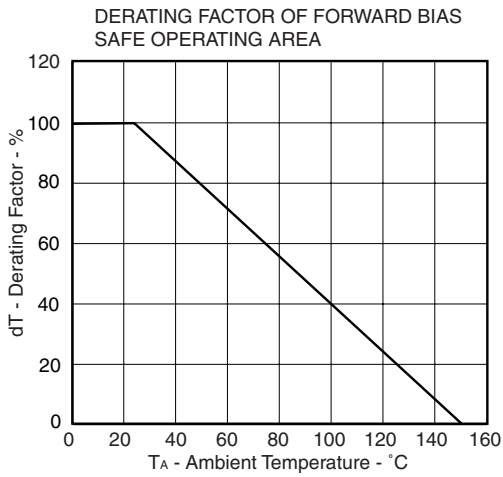
CHARACTERISTICS	SYMBOL	TEST CONDITIONS	MIN.	TYP.	MAX.	UNIT
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 30 V, V _{GS} = 0 V			1.0	μA
Gate Leakage Current	I _{GSS}	V _{GS} = ±20 V, V _{DS} = 0 V			±10	μA
Gate Cut-off Voltage	V _{GS(off)}	V _{DS} = 10 V, I _D = 0.1 mA	1.3	1.85	2.5	V
Forward Transfer Admittance Note	y _{fs}	V _{DS} = 5 V, I _D = 0.3 A	350	440		mS
Drain to Source On-state Resistance Note	R _{DS(on)1}	V _{GS} = 4.0 V, I _D = 0.3 A		1.2	2.0	Ω
	R _{DS(on)2}	V _{GS} = 10 V, I _D = 0.3 A		0.65	1.5	Ω
Input Capacitance	C _{iss}	V _{DS} = 5.0 V		60		pF
Output Capacitance	C _{oss}	V _{GS} = 0 V		50		pF
Reverse Transfer Capacitance	C _{rss}	f = 1 MHz		9		pF
Turn-on Delay Time	t _{d(on)}	V _{DD} = 5.0 V, I _D = 0.3 A		80		ns
Rise Time	t _r	V _{GS} = 4 V		270		ns
Turn-off Delay Time	t _{d(off)}	R _G = 10 Ω		100		ns
Fall Time	t _f			110		ns

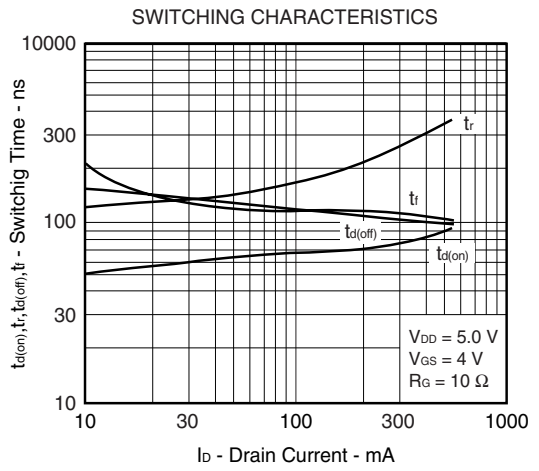
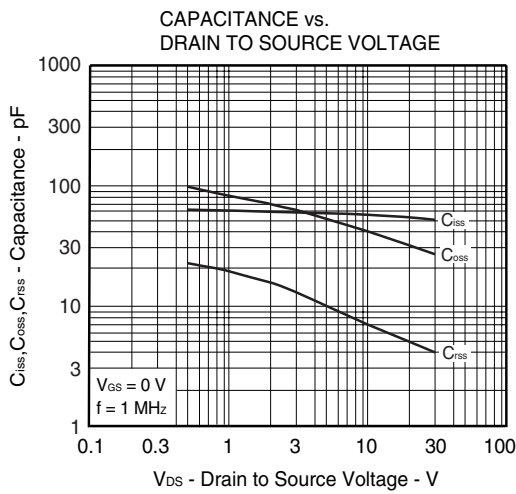
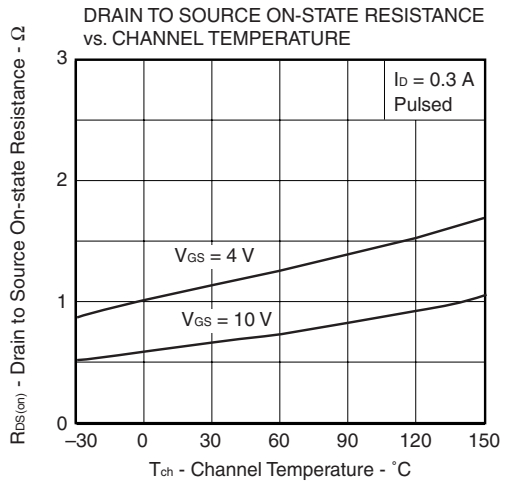
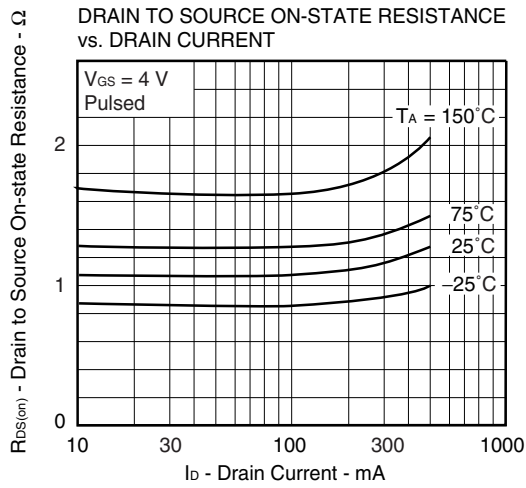
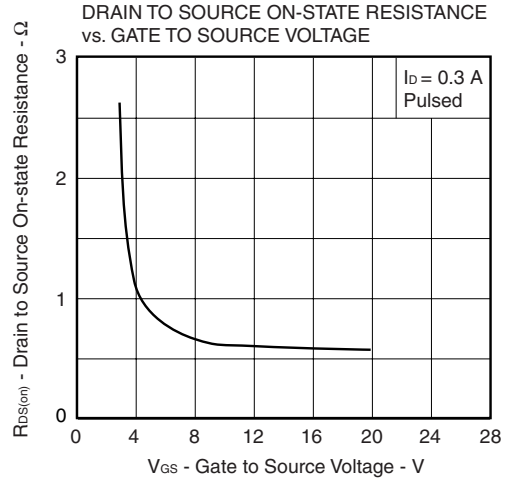
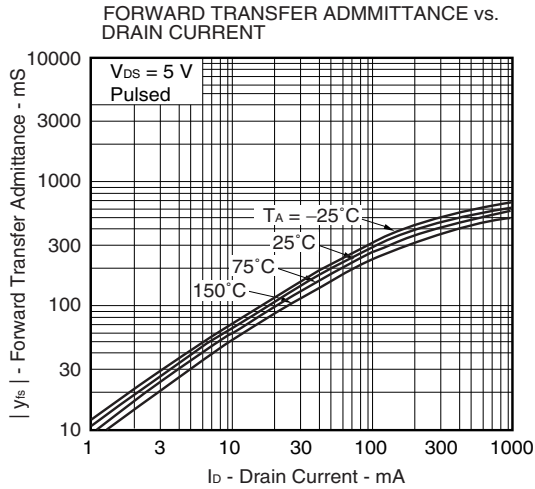
Note Pulsed

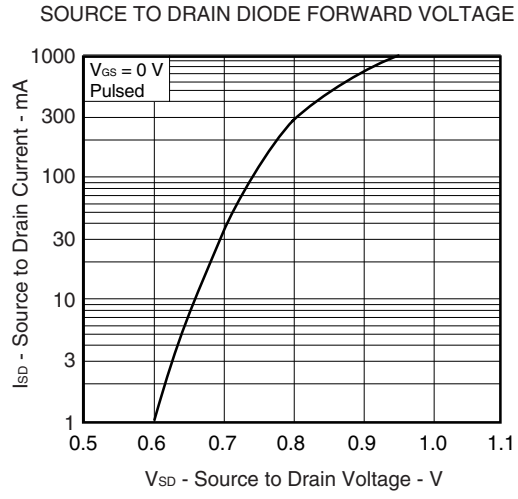
TEST CIRCUIT SWITCHING TIME



★ TYPICAL CHARACTERISTICS (T_A = 25°C)







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