



SANYO Semiconductors

## DATA SHEET

# 2SK1461 — N-Channel Silicon MOSFET

## General-Purpose Switching Device Applications

### Features

- Low ON-state resistance.
- Ultrahigh-speed switching.

### Specifications

**Absolute Maximum Ratings** at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	$V_{DS}$		900	V
Gate-to-Source Voltage	$V_{GS}$		$\pm 30$	V
Drain Current (DC)	$I_D$		5	A
Drain Current (Pulse)	$I_{DP}$	$PW \leq 10\mu\text{s}$ , duty cycle $\leq 1\%$	10	A
Allowable Power Dissipation	$P_D$		2.5	W
		$T_c=25^\circ\text{C}$	120	W
Channel Temperature	$T_{ch}$		150	$^\circ\text{C}$
Storage Temperature	$T_{stg}$		-55 to +150	$^\circ\text{C}$

**Electrical Characteristics** at  $T_a=25^\circ\text{C}$

Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$I_D=1\text{mA}$ , $V_{GS}=0\text{V}$	900			V
Zero-Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=900\text{V}$ , $V_{GS}=0\text{V}$			1.0	mA
Gate-to-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 30\text{V}$ , $V_{DS}=0\text{V}$			$\pm 100$	nA
Cutoff Voltage	$V_{GS(off)}$	$V_{DS}=10\text{V}$ , $I_D=1\text{mA}$	2.0		3.0	V
Forward Transfer Admittance	$ y_{fs} $	$V_{DS}=20\text{V}$ , $I_D=2\text{A}$	1.0	2.0		S
Static Drain-to-Source On-State Resistance	$R_{DS(on)}$	$I_D=2\text{A}$ , $V_{GS}=10\text{V}$		2.8	3.6	$\Omega$

(Note) Be careful in handling the 2SK1461 because it has no protection diode between gate and source.

Continued on next page.

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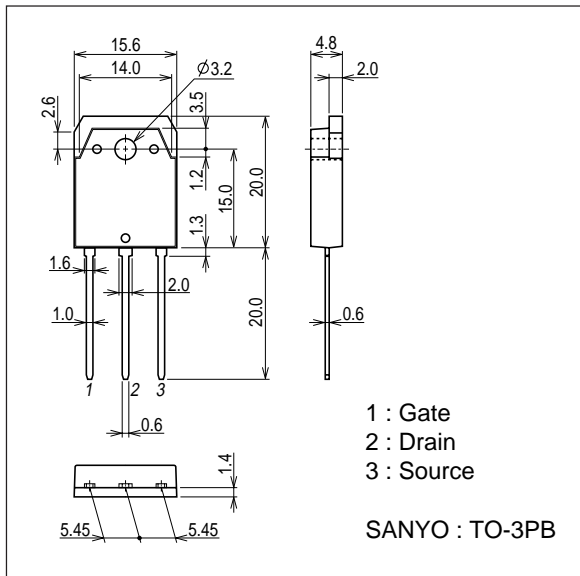
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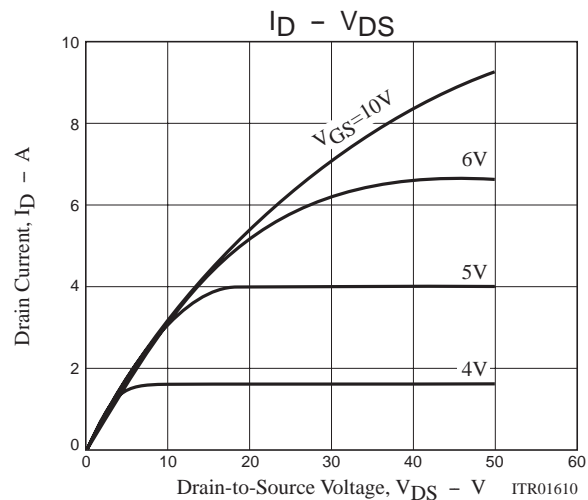
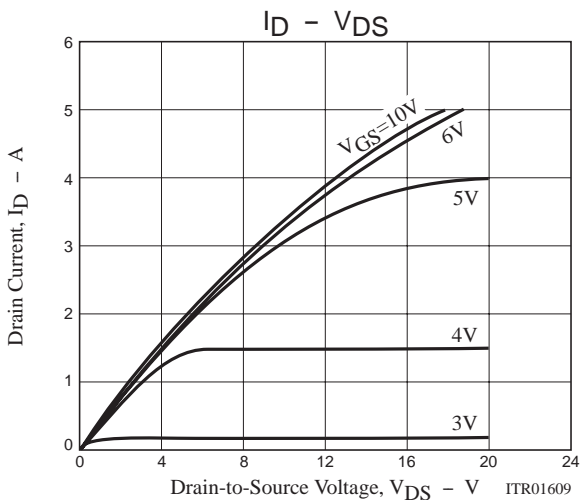
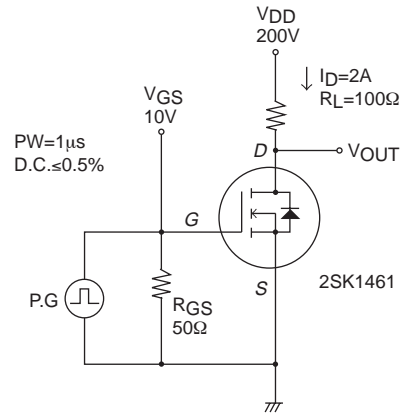
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V <sub>DS</sub> =20V, f=1MHz		700		pF
Output Capacitance	Coss	V <sub>DS</sub> =20V, f=1MHz		300		pF
Reverse Transfer Capacitance	Crss	V <sub>DS</sub> =20V, f=1MHz		170		pF
Turn-ON Delay Time	t <sub>d(on)</sub>	I <sub>D</sub> =2A, V <sub>GS</sub> =10V, V <sub>DD</sub> =200V, R <sub>GS</sub> =50Ω		15		ns
Rise Time	t <sub>r</sub>	I <sub>D</sub> =2A, V <sub>GS</sub> =10V, V <sub>DD</sub> =200V, R <sub>GS</sub> =50Ω		35		ns
Turn-OFF Delay Time	t <sub>d(off)</sub>	I <sub>D</sub> =2A, V <sub>GS</sub> =10V, V <sub>DD</sub> =200V, R <sub>GS</sub> =50Ω		200		ns
Fall Time	t <sub>f</sub>	I <sub>D</sub> =2A, V <sub>GS</sub> =10V, V <sub>DD</sub> =200V, R <sub>GS</sub> =50Ω		65		ns
Diode Forward Voltage	V <sub>SD</sub>	I <sub>S</sub> =5A, V <sub>GS</sub> =0V			1.8	V

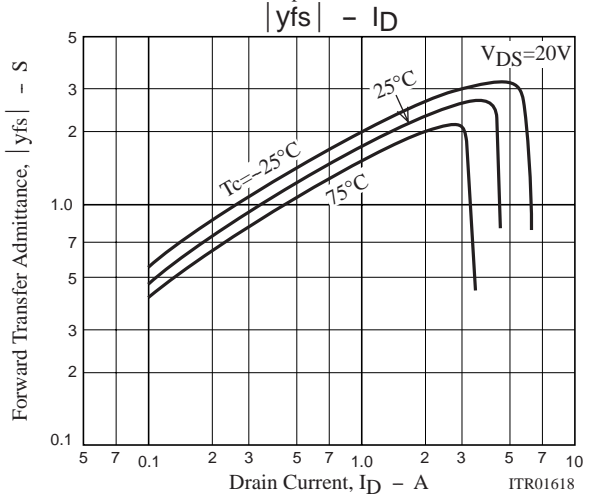
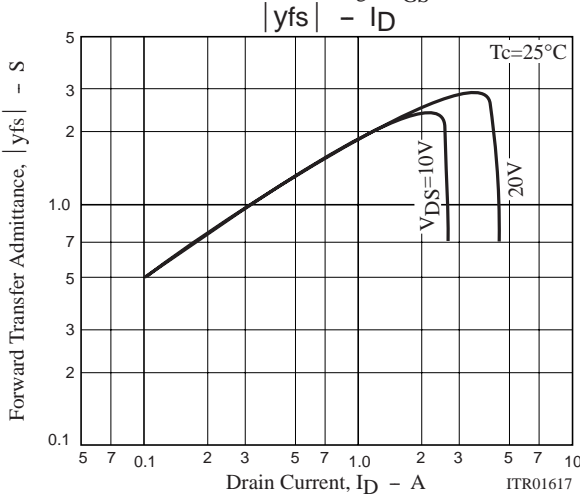
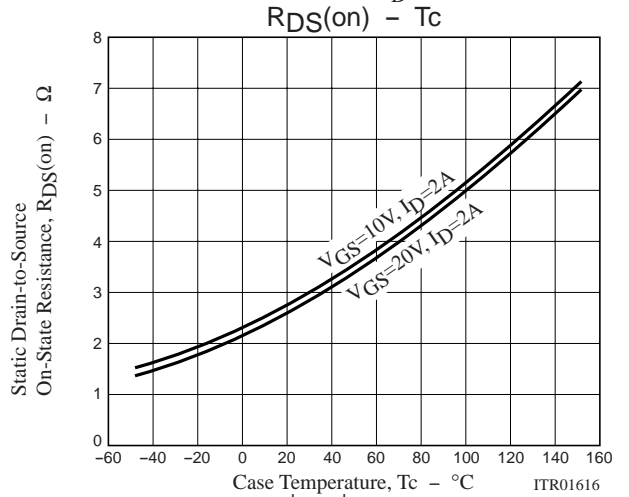
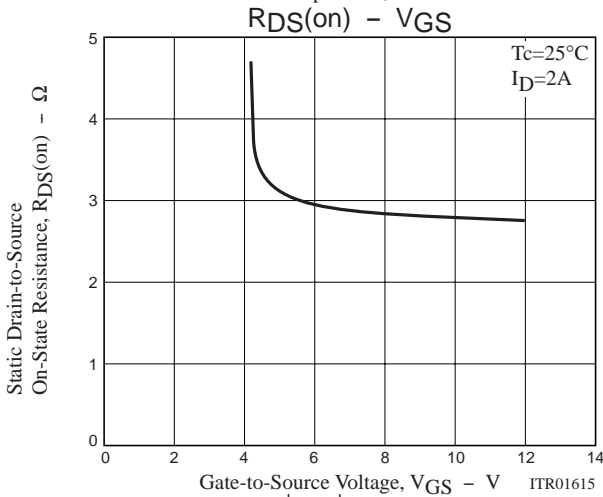
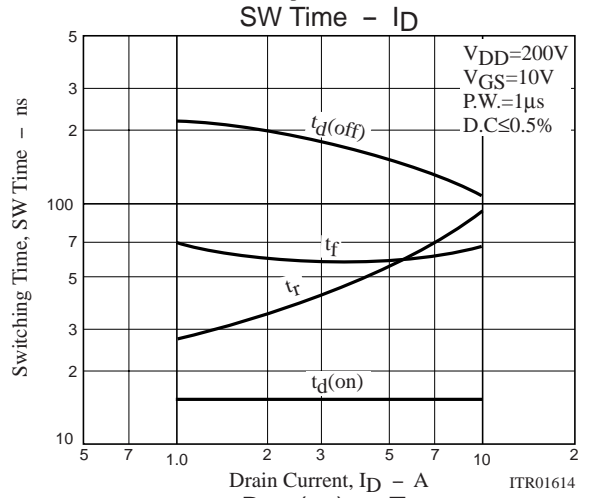
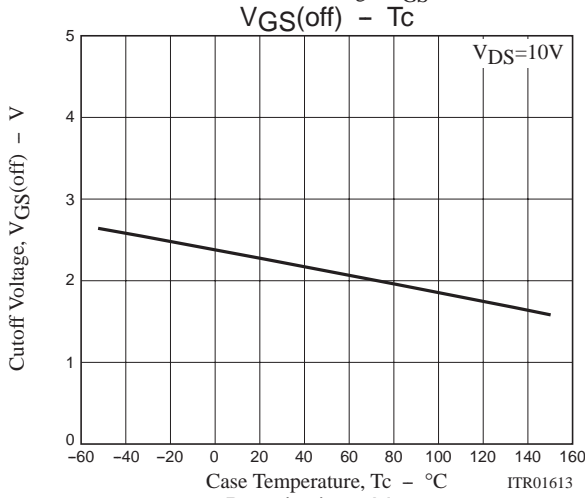
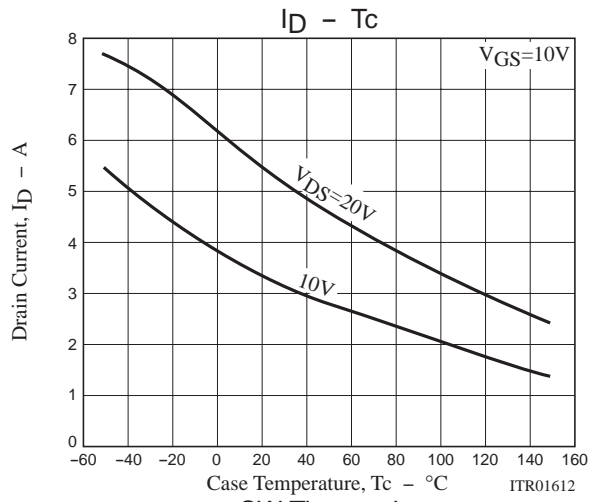
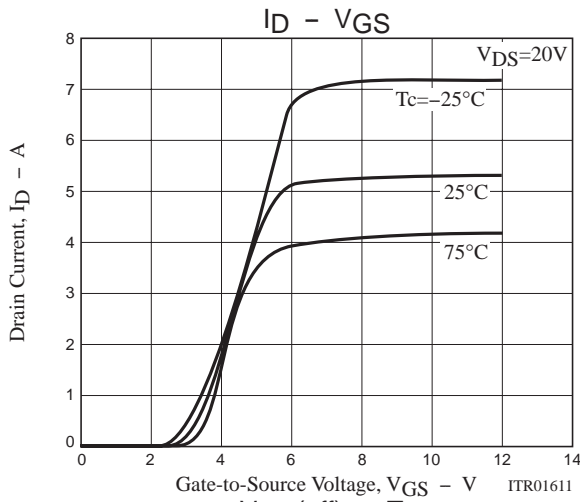
**Package Dimensions**

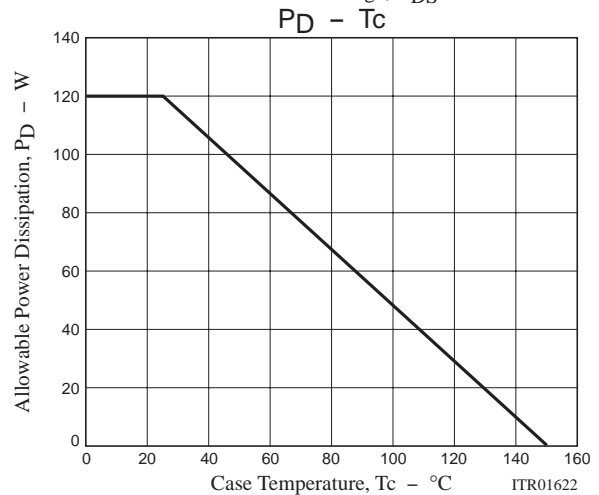
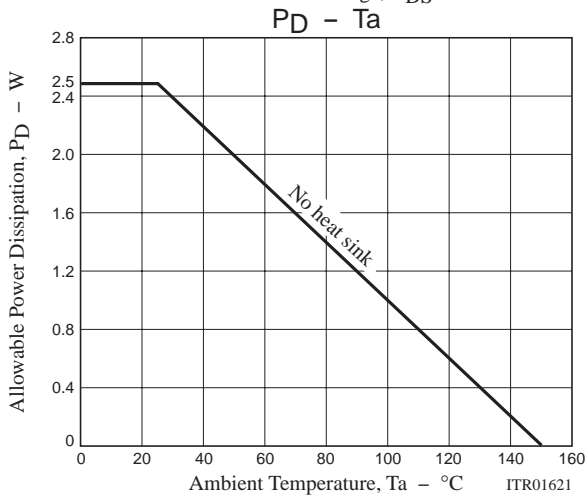
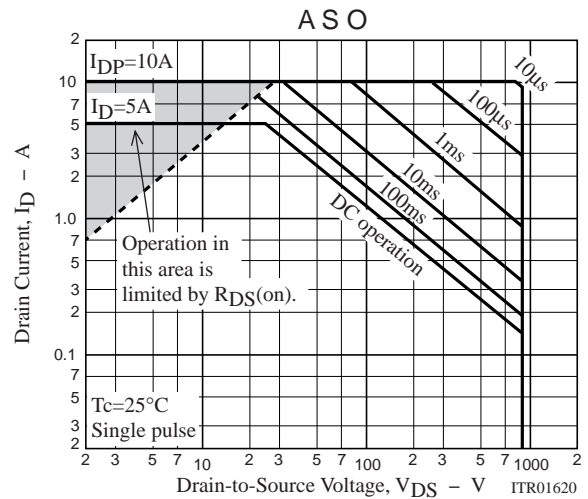
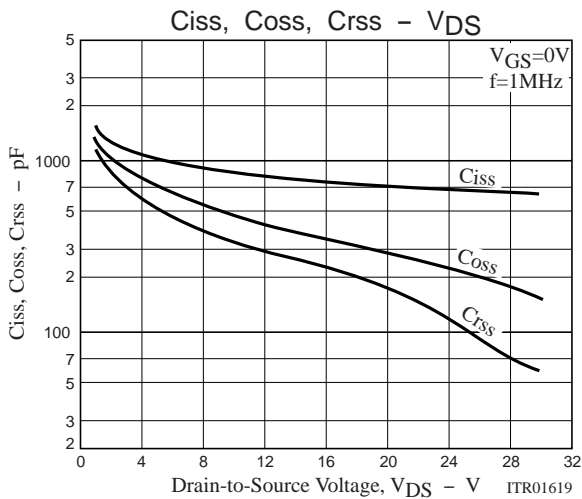
unit : mm (typ)  
7503-004



**Switching Time Test Circuit**







Note on usage : Since the 2SK1461 is a MOSFET product, please avoid using this device in the vicinity of highly charged objects.

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