Ordering number : EN3464A

SANYO Semiconductors

DATA SHEET

N-Channel Silicon MOSFET

2SK1461 — General-Purpose Switching Device Applications

Features

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

Specifications

Absolute Maximum Ratings at Ta=25°C

Parameter	Symbol	Conditions	Ratings	Unit
Drain-to-Source Voltage	V_{DSS}		900	V
Gate-to-Source Voltage	V_{GSS}		±30	V
Drain Current (DC)	I_D		5	A
Drain Current (Pulse)	I_{DP}	PW≤10μs, duty cycle≤1%	10	A
Allowable Power Dissipation	P_D		2.5	W
		Tc=25°C	120	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		-55 to +150	°C

Electrical Characteristics at Ta=25°C

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

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

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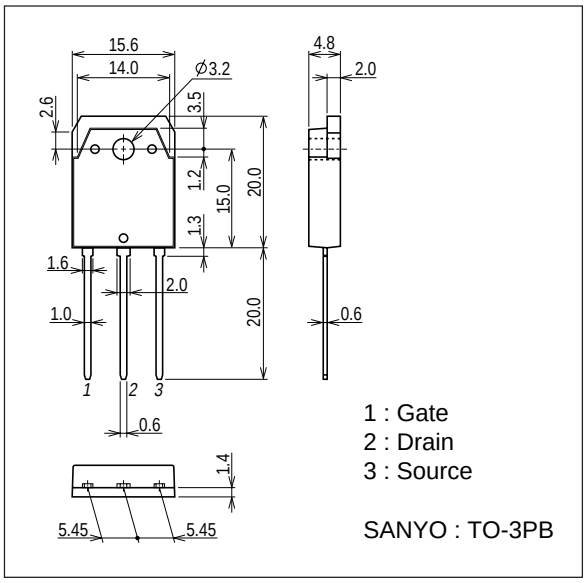
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		700		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		300		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		170		pF
Turn-ON Delay Time	t_{d}(on)	I_D=2A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		15		ns
Rise Time	t_r	I_D=2A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		35		ns
Turn-OFF Delay Time	t_{d}(off)	I_D=2A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		200		ns
Fall Time	t_f	I_D=2A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		65		ns
Diode Forward Voltage	V_{SD}	I_S=5A, V_{GS}=0V			1.8	V

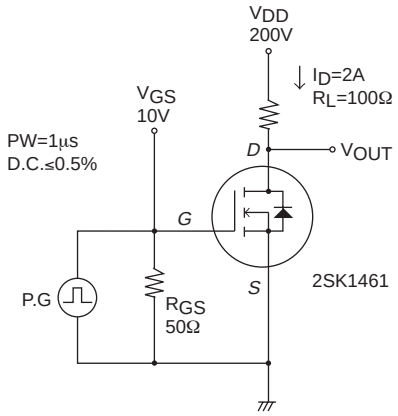
Package Dimensions

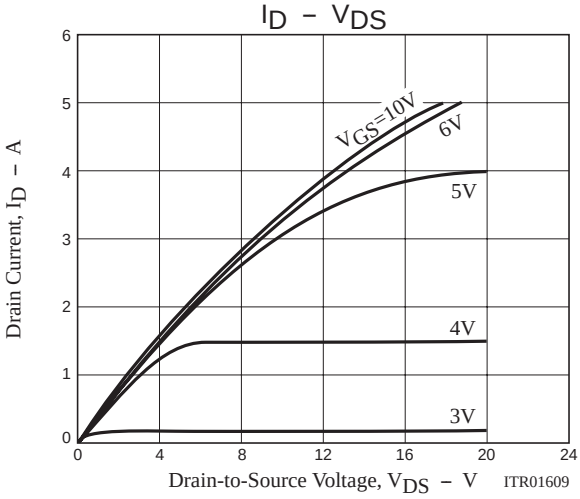
unit : mm (typ)

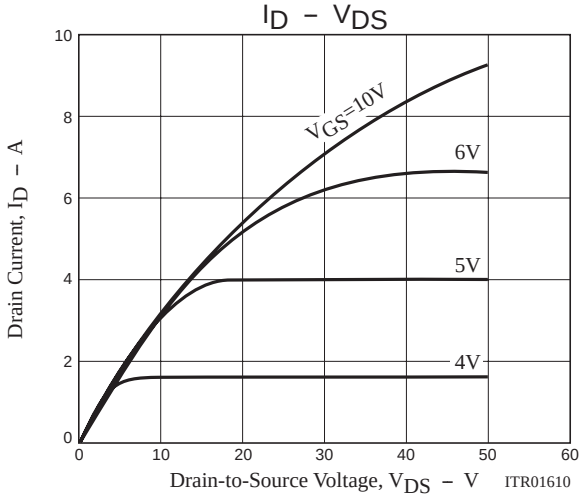
7503-004

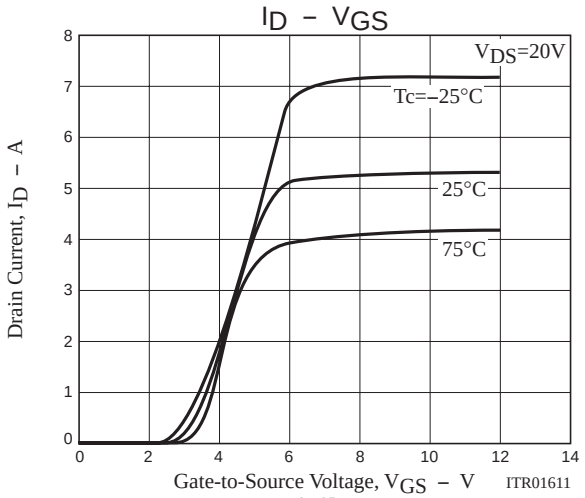


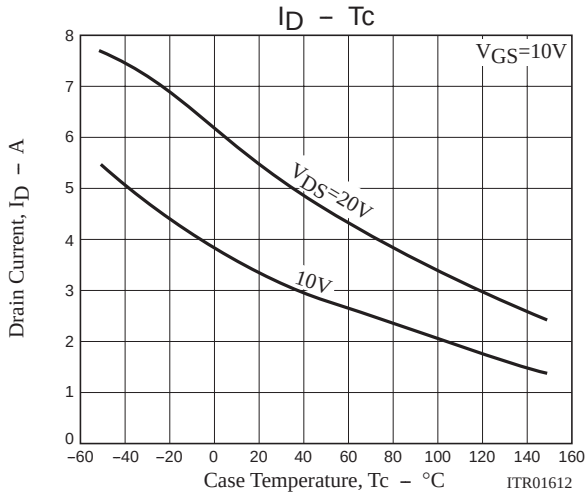
Switching Time Test Circuit

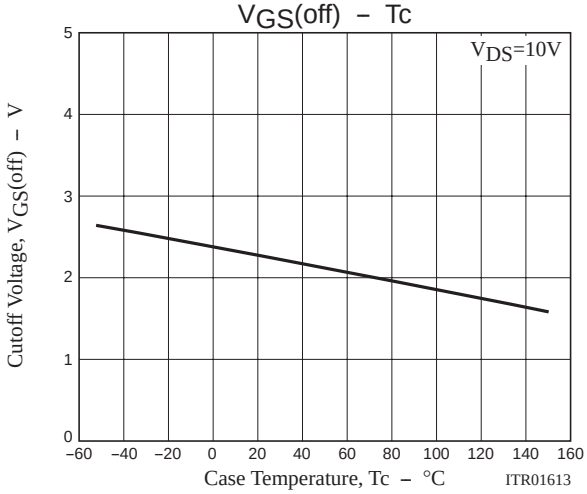


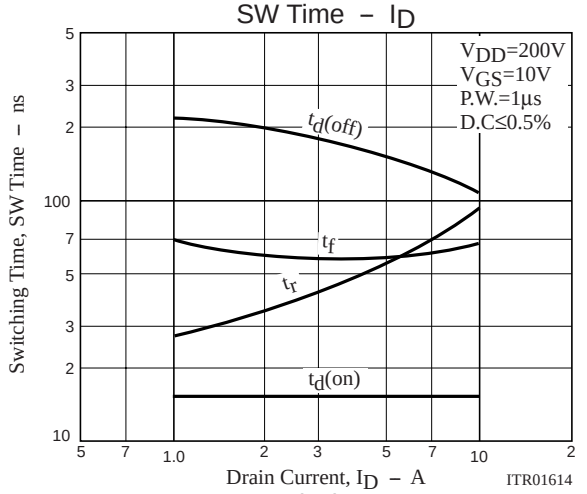


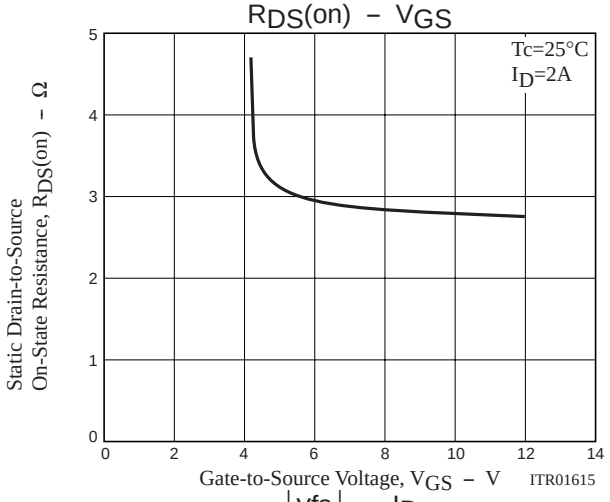


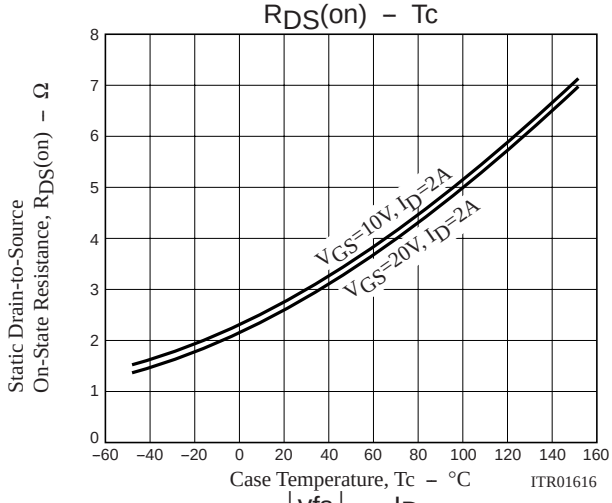

ID – VGS
VDS=20V
Tc=–25°C
25°C
75°C
Drain Current, ID – A
Gate-to-Source Voltage, VGS – V
ITR01611

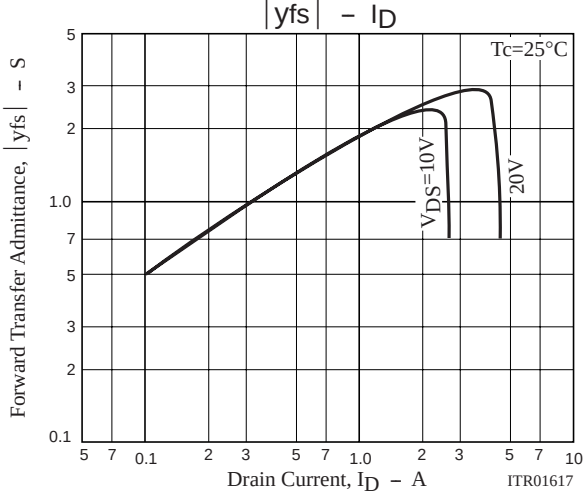

ID – Tc
VGS=10V
VDS=20V
10V
Drain Current, ID – A
Case Temperature, Tc – °C
ITR01612

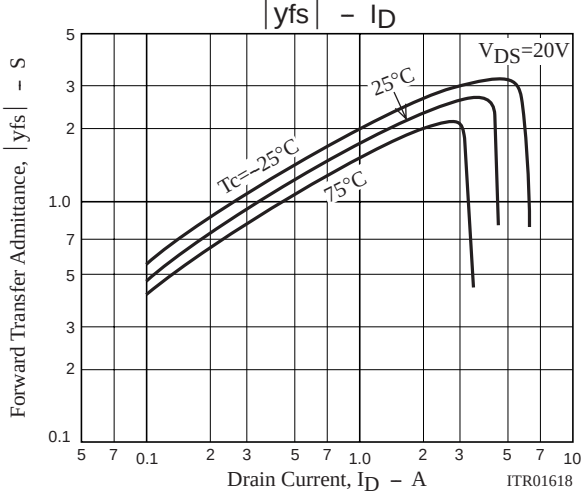

VGS(off) – Tc
VDS=10V
Cutoff Voltage, VGS(off) – V
Case Temperature, Tc – °C
ITR01613

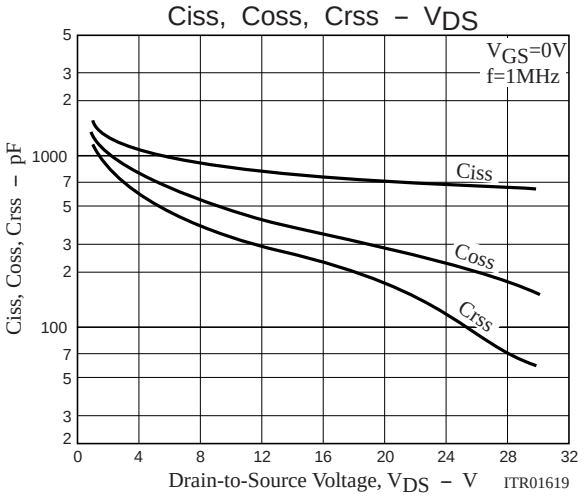

SW Time – ID
VDD=200V
VGS=10V
P.W.=1µs
D.C≤0.5%
td(off)
tf
tr
td(on)
Switching Time, SW Time – ns
Drain Current, ID – A
ITR01614

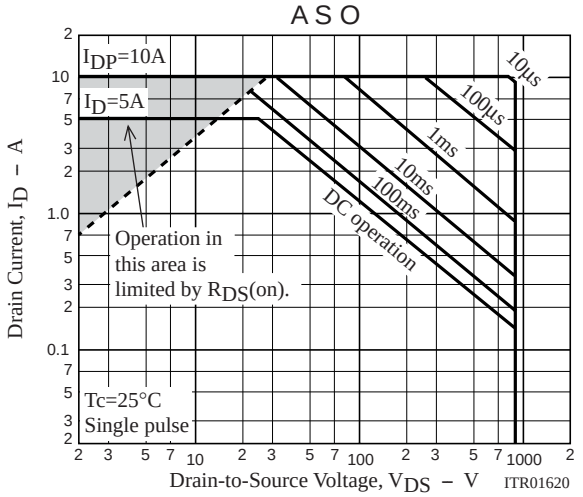

RDS(on) – VGS
Tc=25°C
ID=2A
Static Drain-to-Source
On-State Resistance, RDS(on) – Ω
Gate-to-Source Voltage, VGS – V
ITR01615

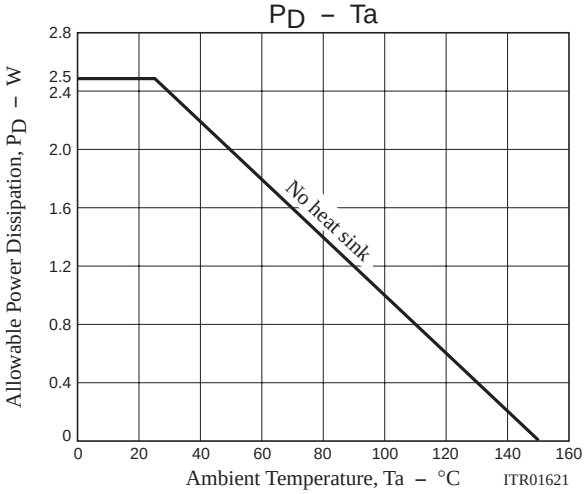

RDS(on) – Tc
VGS=10V, ID=2A
VGS=20V, ID=2A
Static Drain-to-Source
On-State Resistance, RDS(on) – Ω
Case Temperature, Tc – °C
ITR01616

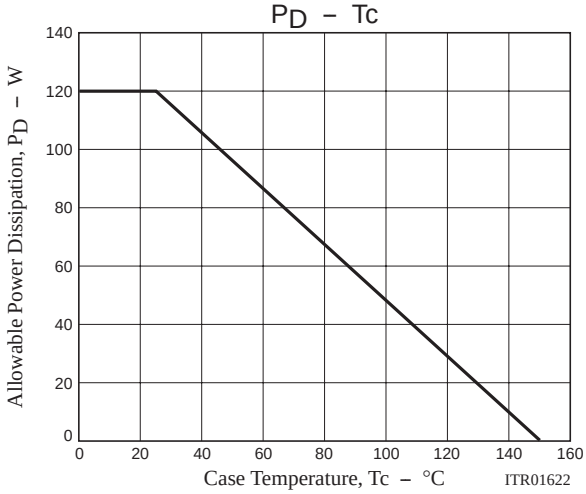

|yfs| – ID
Tc=25°C
VDS=10V
20V
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
ITR01617


|yfs| – ID
VDS=20V
25°C
Tc=–25°C
75°C
Forward Transfer Admittance, |yfs| – S
Drain Current, ID – A
ITR01618









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