Ordering number: EN 3454

SANYO

No.3454

2SK1451

N-Channel MOS Silicon FET

Very High-Speed Switching Applications

Features

- Low ON-state resistance.
- Very high-speed switching.
- Converters.
- Micaless package facilitating mounting.

Absolute Maximum Ratings at Ta = 25°C

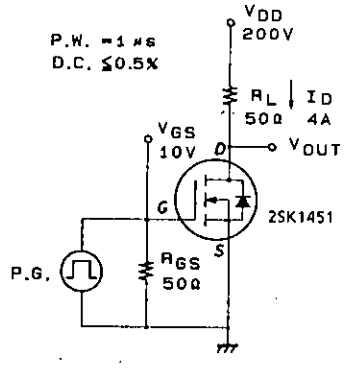
				unit
Drain to Source Voltage	V_{DSS}		450	V
Gate to Source Voltage	V_{GSS}		±30	V
Drain Current(DC)	I_D		8	A
Drain Current(Pulse)	I_{DP}	PW≦10μs, duty cycle≦1%	32	A
Allowable Power Dissipation	P_D	Tc=25°C	50	W
			3.0	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
D-S Breakdown Voltage	$V_{(BR)DSS}$	I_D=1mA, V_{GS}=0	450			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=450V, V_{GS}=0			1.0	mA
Gate to Source Leakage Current	I_{GSS}	V_{GS}=±30V, V_{DS}=0			±100	nA
Cutoff Voltage	$V_{GS(off)}$	V_{DS}=10V, I_D=1mA	2.0		3.0	V
Forward Transfer Admittance	$\|Y_{fs}\|$	V_{DS}=10V, I_D=4A	3.0	6.0		S
Static Drain to Source on State Resistance	$R_{DS(on)}$	I_D=4A, V_{GS}=10V		0.6	0.8	Ω
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		1200		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		180		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		70		pF
Turn-ON Delay Time	$t_{d(on)}$	I_D=4A, V_{GS}=10V V_{DD}=200V, R_{GS}=50Ω		20		ns
Rise Time	t_r			40		ns
Turn-OFF Delay Time	$t_{d(off)}$			160		ns
Fall Time	t_f			60		ns
Diode Forward Voltage	V_{SD}	I_S=8A, V_{GS}=0			1.8	V

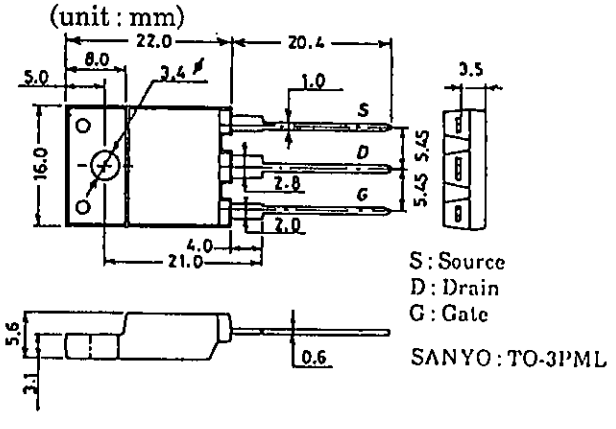
(Note) Be careful in handling the 2SK1451 because it has no protection diode between gate and source.

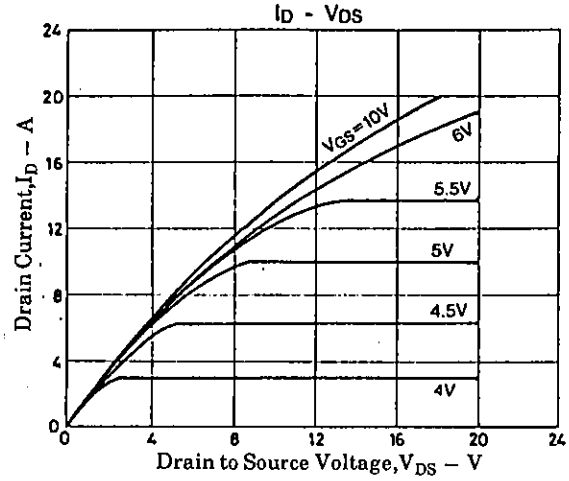
Switching Time Test Circuit

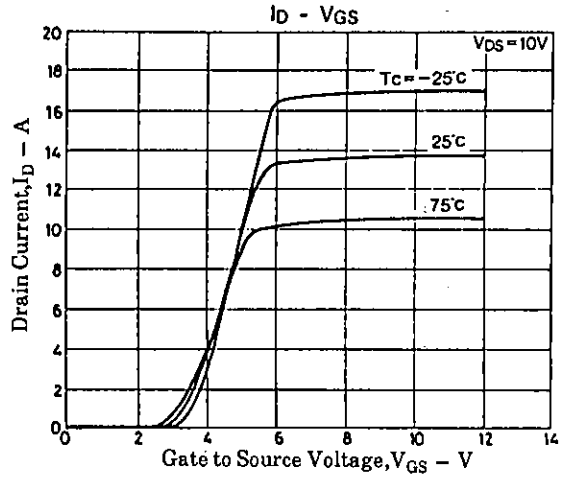


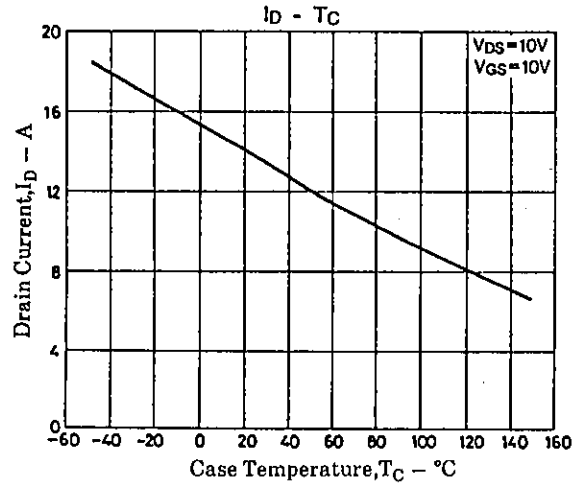
Package Dimensions 2076

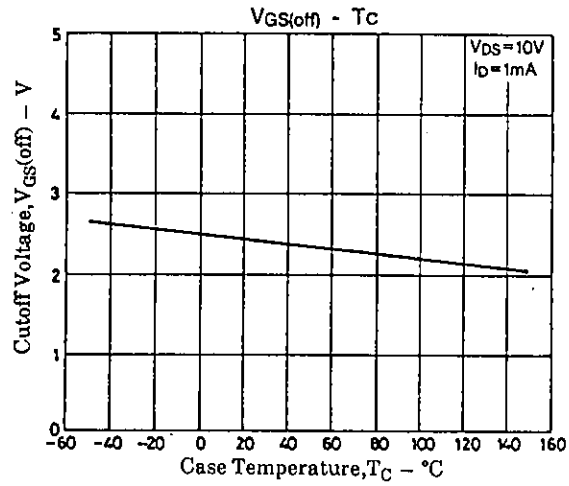
(unit : mm)

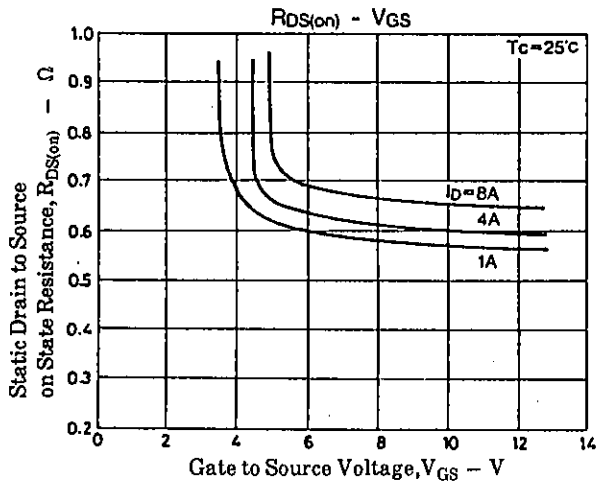


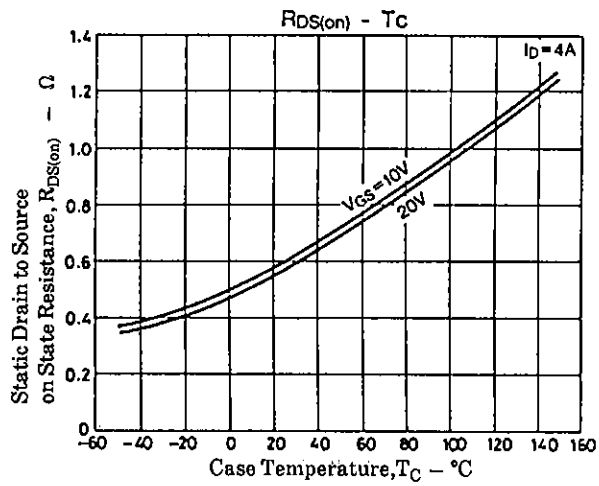

ID - VDS
Drain Current, ID – A
Drain to Source Voltage, VDS – V
VGS=10V
6V
5.5V
5V
4.5V
4V

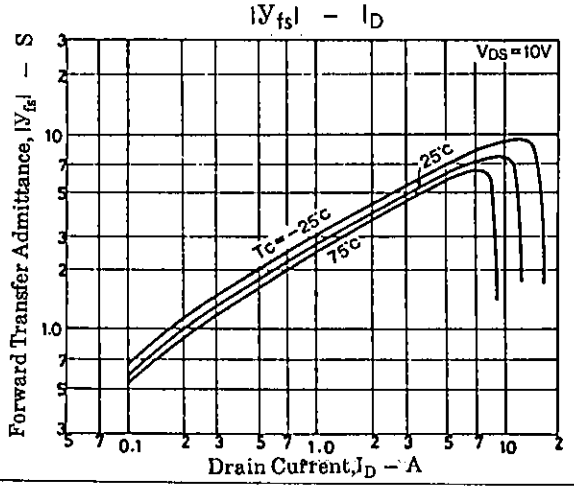

ID - VGS
Drain Current, ID – A
Gate to Source Voltage, VGS – V
VDS=10V
Tc=–25°C
25°C
75°C

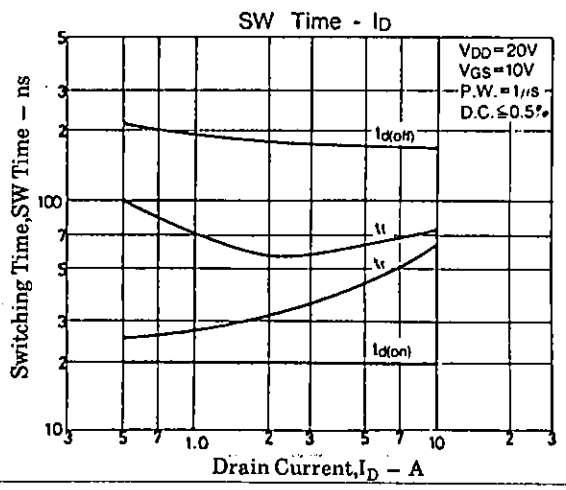

ID - Tc
Drain Current, ID – A
Case Temperature, TC – °C
VDS=10V
VGS=10V


VGS(off) - Tc
Cutoff Voltage, VGS(off) – V
Case Temperature, TC – °C
VDS=10V
ID=1mA


RDS(on) - VGS
Static Drain to Source on State Resistance, RDS(on) – Ω
Gate to Source Voltage, VGS – V
Tc=25°C
ID=8A
4A
1A


RDS(on) - Tc
Static Drain to Source on State Resistance, RDS(on) – Ω
Case Temperature, TC – °C
ID=4A
VGS=10V
20V


|Yfs| - ID
Forward Transfer Admittance, |Yfs| – S
Drain Current, ID – A
VDS=10V
25°C
Tc=–25°C
75°C


SW Time - ID
Switching Time, SW Time – ns
Drain Current, ID – A
VDD=20V
VGS=10V
P.W.=1μs
D.C.≤0.5%
td(off)
tf
tr
td(on)