Ordering number: EN 4230

SANYO No.4230

2SK1414

N-Channel MOS Silicon FET

High-Voltage High-Speed Switching Applications

Features

- Low ON resistance, low input capacitance, very high-speed switching.
- High reliability (Adoption of HVP process).

Absolute Maximum Ratings at Ta = 25°C

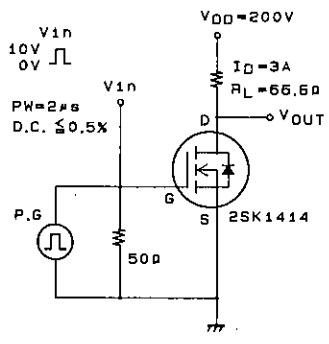
				unit
Drain to Source Voltage	V_{DSS}		1500	V
Gate to Source Voltage	V_{GSS}		±20	V
Drain Current(DC)	I_D		6	A
Drain Current(Pulse)	I_{DP}	PW≦10μs, duty cycle≦1%	12	A
Allowable Power Dissipation	P_D		3.5	W
		T_c = 25°C	200	W
Channel Temperature	Tch		150	°C
Storage Temperature	Tstg		−55 to +150	°C

Electrical Characteristics at Ta = 25°C

			min	typ	max	unit
D-S Breakdown Voltage	$V_{(BR)DSS}$	I_D = 1mA, V_{GS} = 0	1500			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 1200V, V_{GS} = 0			100	μA
Gate to Source Leakage Current	I_{GSS}	V_{GS} = ±20V, V_{DS} = 0			±100	nA
Cutoff Voltage	$V_{GS(off)}$	V_{DS} = 10V, I_D = 1mA	1.5		3.5	V
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = 20V, I_D = 3A	1.0	3.0		S
Static Drain to Source on State Resistance	$R_{DS(on)}$	I_D = 3A, V_{GS} = 10V		2.5	3.5	Ω
Input Capacitance	C_{iss}	V_{DS} = 20V, f = 1MHz		1100		pF
Output Capacitance	C_{oss}	V_{DS} = 20V, f = 1MHz		350		pF
Reverse Transfer Capacitance	C_{rss}	V_{DS} = 20V, f = 1MHz		150		pF
Turn-ON Delay Time	$t_{d(on)}$	See specified Test Circuit.		25		ns
Rise Time	t_r	〃		85		ns
Turn-OFF Delay Time	$t_{d(off)}$	〃		155		ns
Fall Time	t_f	〃		95		ns
Diode Forward Voltage	V_{SD}	I_S = 6A, V_{GS} = 0		1.0	1.5	V

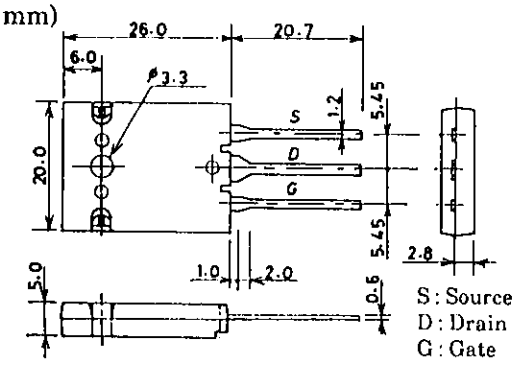
(Note) Be careful in handling the 2SK1414 because it has no protection diode between gate and source.

Switching Time Test Circuit



Package Dimensions 2077

(unit : mm)



SANYO : TO-3PBL

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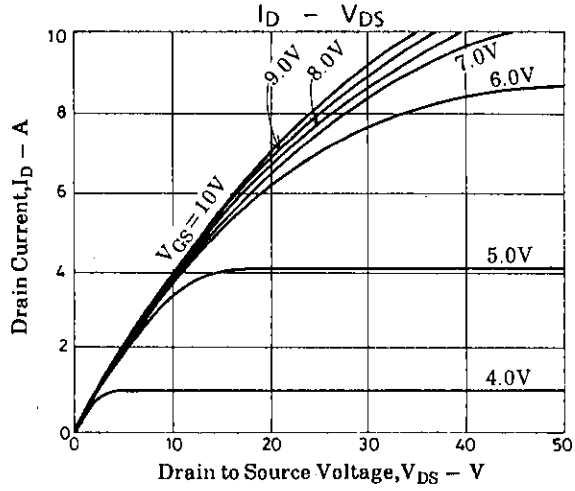
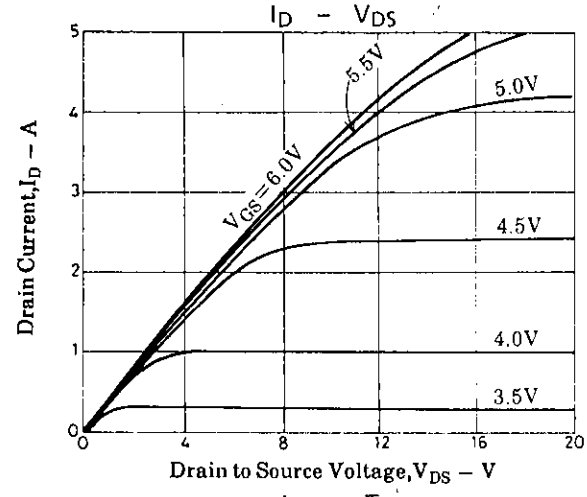
TOKYO OFFICE Tokyo Bldg., 1-10,1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

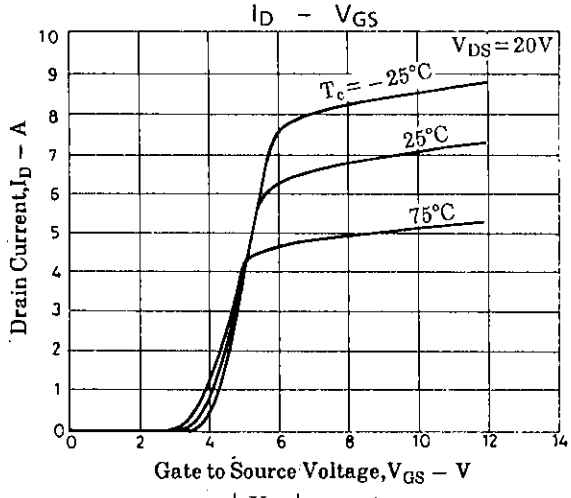
I_D – V_{DS}



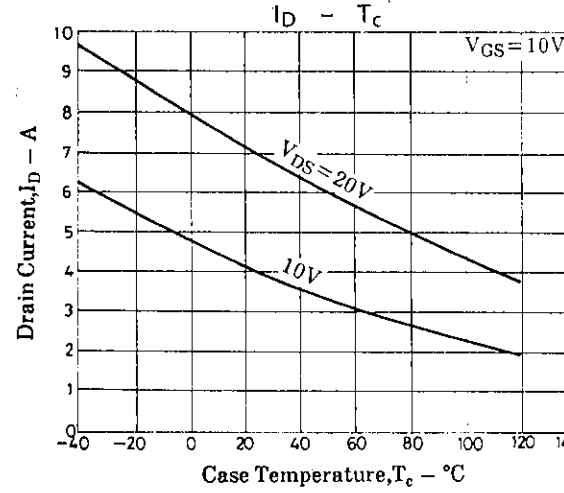
I_D – V_{DS}



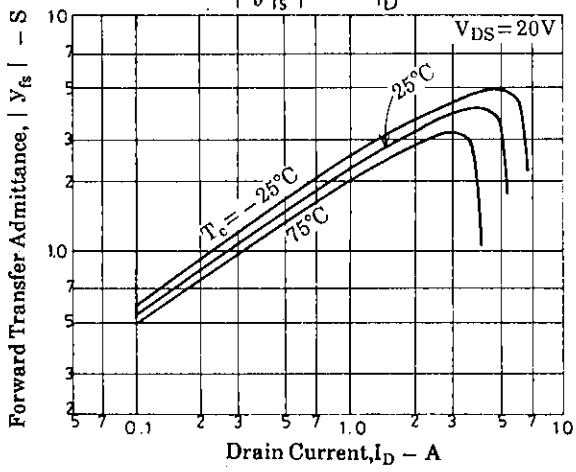
I_D – V_{GS}



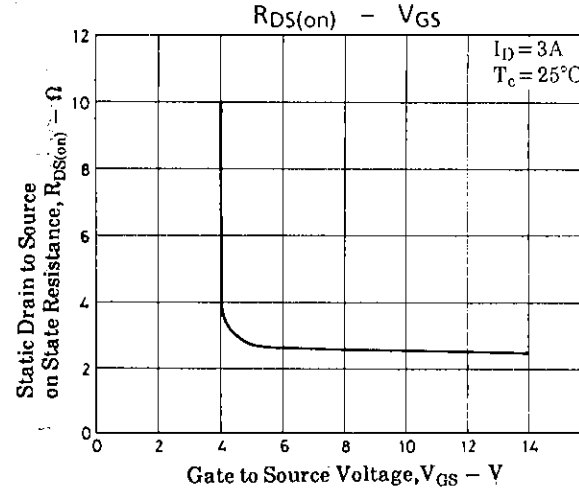
I_D – T_c



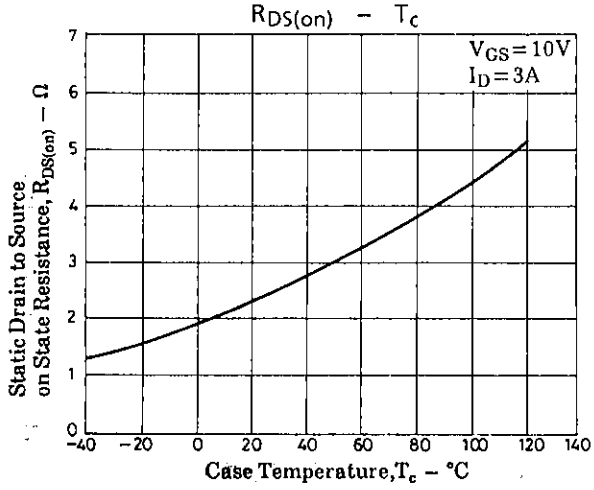
$|y_{fs}|$ – I_D



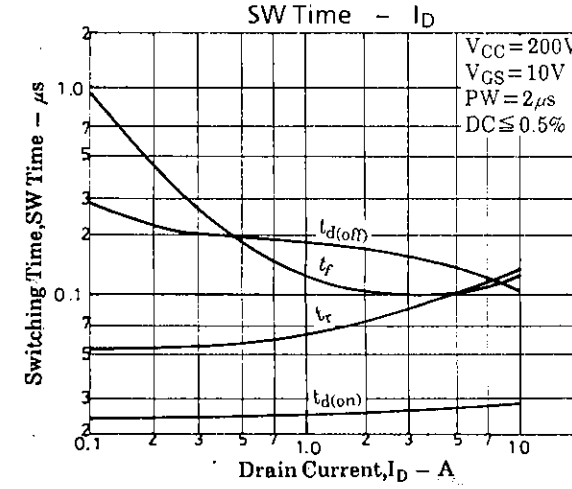
$R_{DS(on)}$ – V_{GS}

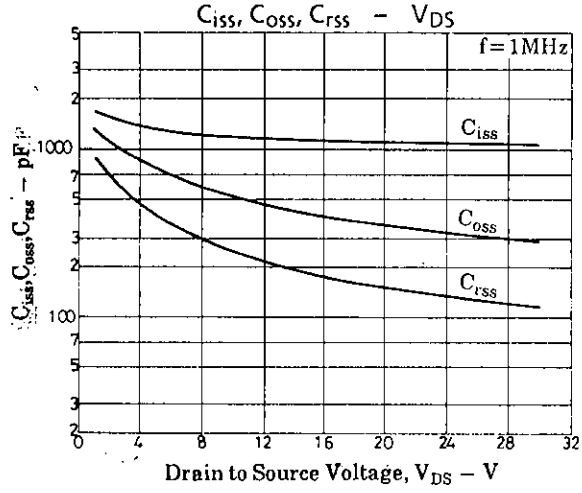


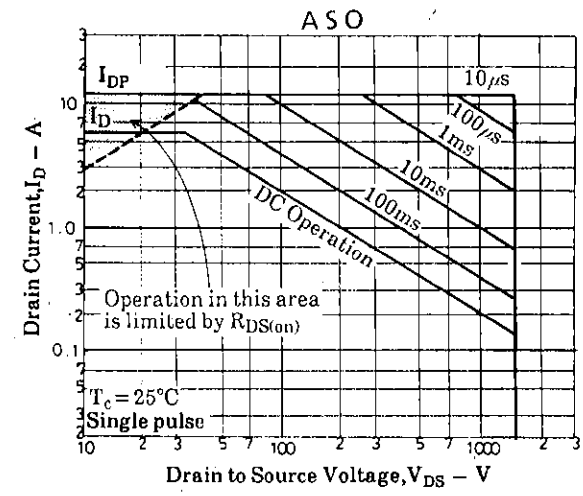
$R_{DS(on)}$ – T_c

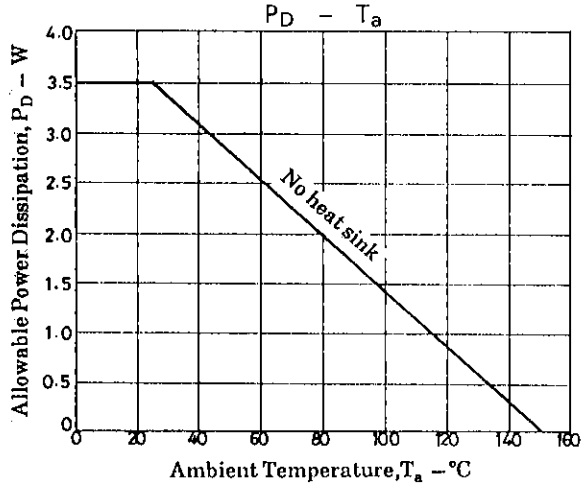


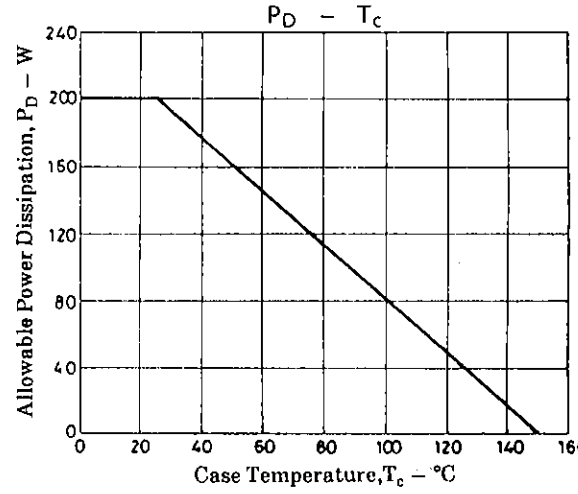
SW Time – I_D




Ciss, Coss, Crss – VDS
f=1MHz
Ciss
Coss
Crss
Ciss, Coss, Crss – pF
Drain to Source Voltage, VDS – V


ASO
IDP
ID
10μs
100μs
1ms
10ms
100ms
DC Operation
Operation in this area
is limited by RDS(on)
Tc=25°C
Single pulse
Drain Current, ID – A
Drain to Source Voltage, VDS – V


PD – Ta
No heat sink
Allowable Power Dissipation, PD – W
Ambient Temperature, Ta – °C


PD – Tc
Allowable Power Dissipation, PD – W
Case Temperature, Tc – °C