Ordering number:ENN4617

N-Channel Silicon MOSFET

2SK2083

Ultrahigh-Speed Switching Applications

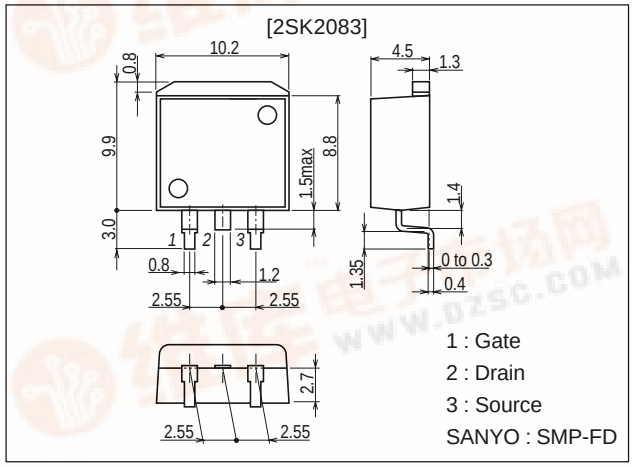
Features

- Low ON resistance.
- Ultrahigh-speed switching.
- Micaless package facilitating mounting.

Package Dimensions

unit:mm

2090A



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	Tc=25°C	70	W
			1.65	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}=0	900			V
Zero-Gate Votlage Drain Current	I_{DSS}	V_{DS}=900V, 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	| 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

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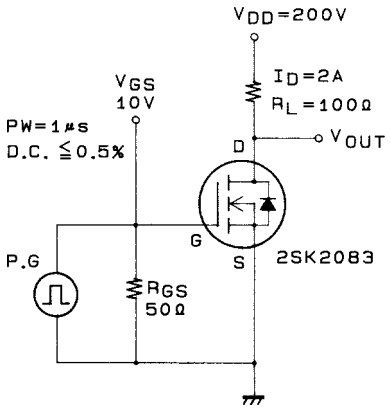
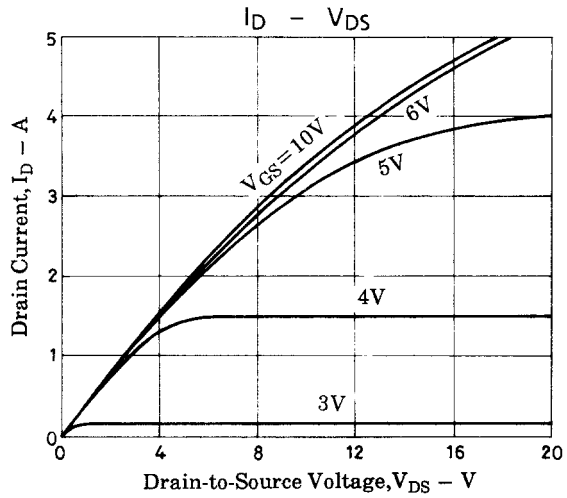
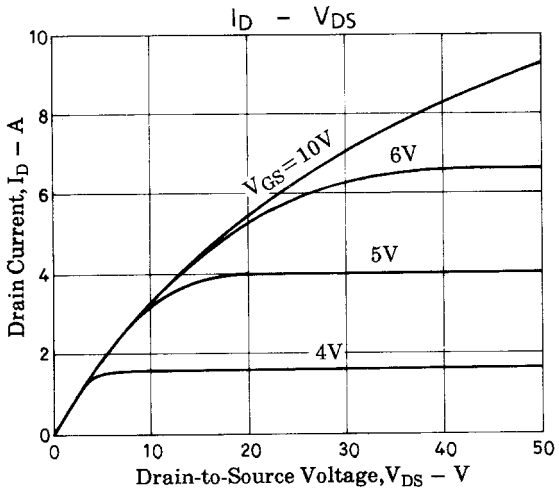
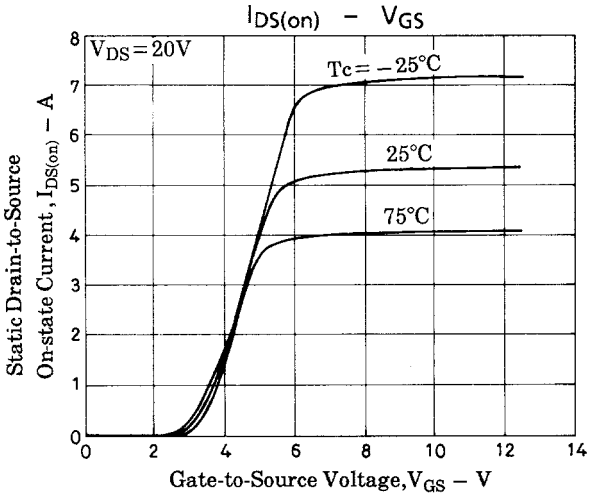
Parameter	Symbol	Conditions	Ratings			Unit
			min	typ	max	
Input Capacitance	Ciss	V_{DS}=20V, f=1MHz		700		pF
Output Capacitance	Coss	V_{DS}=20V, f=1MHz		300		pF
Reverse Transfer Capacitance	Crss	V_{DS}=20V, f=1MHz		170		pF
Turn-ON Delay Time	$t_{d(on)}$	I_D=2A, V_{GS}=10V, V_{DD}=200V, R_{GS}=50Ω		15		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}=0			1.8	V

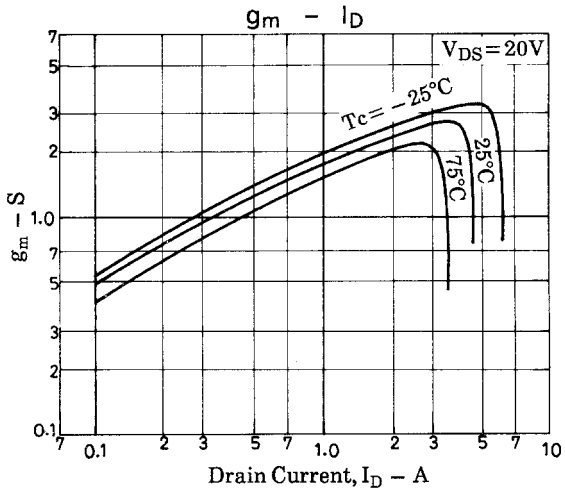
Switching Time Test Circuit



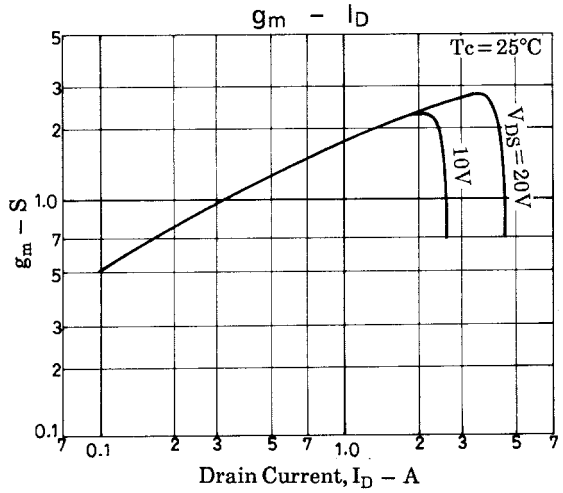




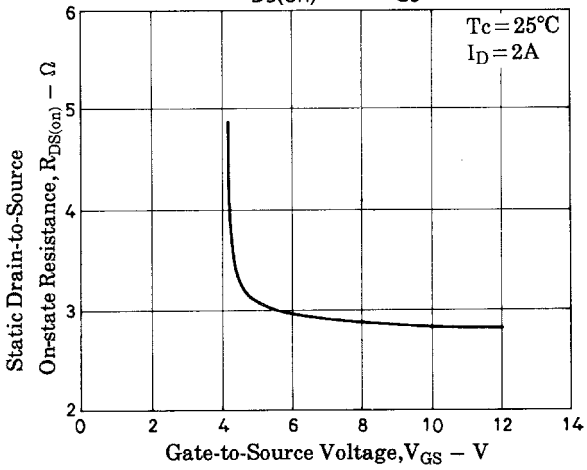




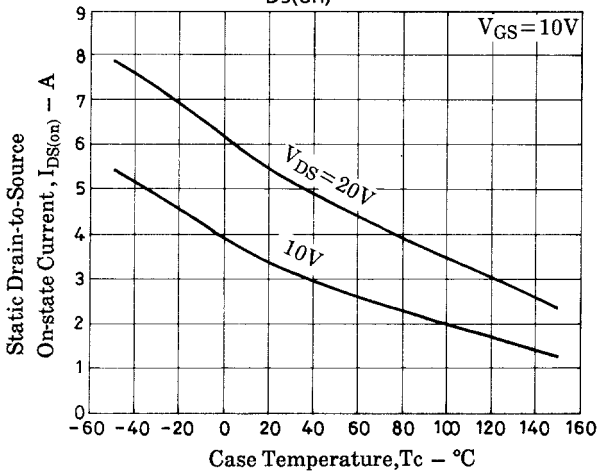
g_m – I_D



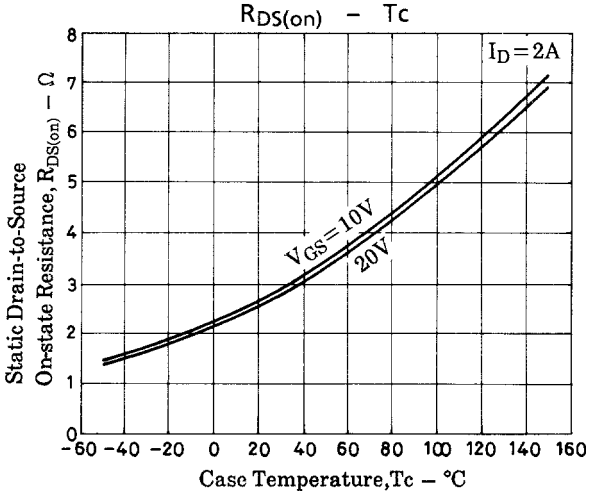
$R_{DS(on)}$ – V_{GS}



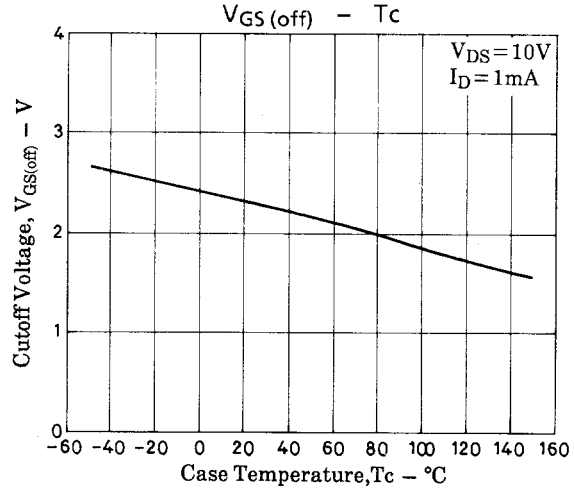
$I_{DS(on)}$ – Tc



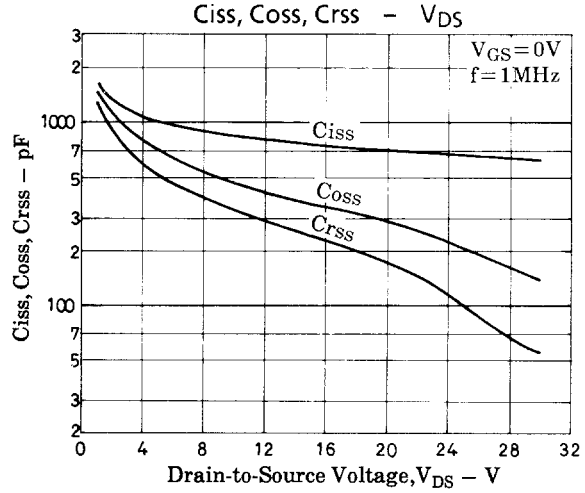
$R_{DS(on)}$ – Tc



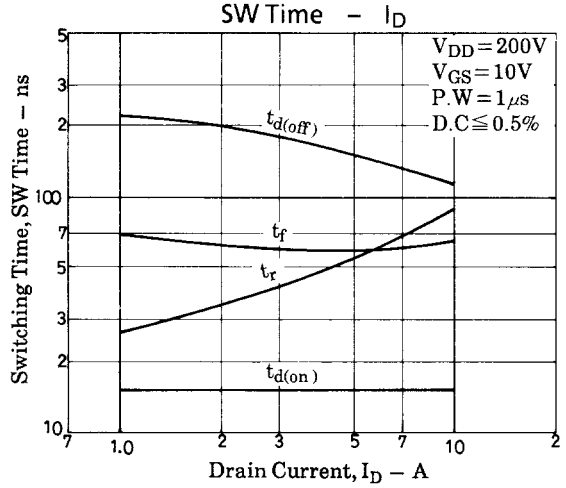
$V_{GS(off)}$ – Tc



Ciss, Coss, Crss – V_{DS}



SW Time – I_D



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