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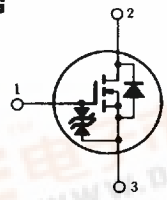
2SK623

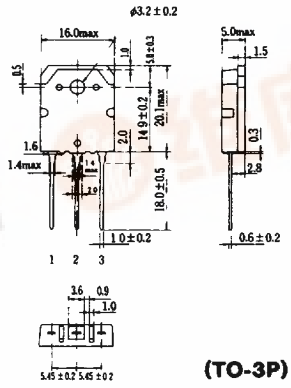
SILICON N-CHANNEL MOS FET

HIGH SPEED POWER SWITCHING



■ FEATURES

- Low On-Resistance
- High Speed Switching
- Low Drive Current
- No Secondary Breakdown
- Suitable for Switching Regulator, DC-DC Converter and Motor Driver



1 Gate
2 Drain (Flange)
3. Source
(Dimensions in mm)

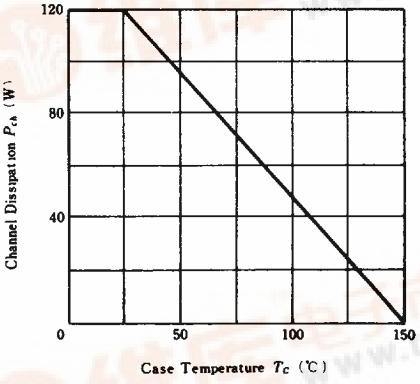
(TO-3P)

■ ABSOLUTE MAXIMUM RATINGS (Ta=25℃)

Item	Symbol	Rating	Unit
Drain-Source Voltage	V_{DSS}	250	V
Gate-Source Voltage	V_{GSS}	±20	V
Drain Current	I_D	20	A
Drain Peak Current	$I_{D(pulse)}$*	80	A
Body-Drain Diode Reverse Drain Current	I_{DR}	20	A
Channel Dissipation	P_{ch}**	120	W
Channel Temperature	T_{ch}	150	℃
Storage Temperature	T_{stg}	−55～+150	℃

*PW≤10μs, duty cycle≤1%
**Value at Tc=25℃

POWER VS. TEMPERATURE DERATING



■ ELECTRICAL CHARACTERISTICS (Ta=25℃)

Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	I_D=10mA, V_{GS}=0	250	—	—	V
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	I_G=±100μA, V_{DS}=0	±20	—	—	V
Gate-Source Leak Current	I_{GSS}	V_{GS}=±16V, V_{DS}=0	—	—	±10	μA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=200V, V_{GS}=0	—	—	250	μA
Gate-Source Cutoff Voltage	$V_{GS(off)}$	I_D=1mA, V_{DS}=10V	2.0	—	4.0	V
Static Drain-Source on State Resistance	$R_{DS(on)}$	I_D=10A, V_{GS}=10V*	—	0.12	0.15	Ω
Forward Transfer Admittance	$\|y_{fs}\|$	I_D=10A, V_{DS}=10V*	7	12	—	S
Input Capacitance	C_{iss}	V_{DS}=10V, V_{GS}=0, f=1MHz	—	2000	—	pF
Output Capacitance	C_{oss}		—	950	—	pF
Reverse Transfer Capacitance	C_{rss}		—	270	—	pF
Turn-on Delay Time	$t_{d(on)}$	I_D=10A, V_{GS}=10V, R_L=3Ω	—	25	—	ns
Rise Time	t_r		—	200	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	200	—	ns
Fall Time	t_f		—	160	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	I_F=20A, V_{GS}=0	—	1.2	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	I_F=20A, V_{GS}=0, di_F/dt=50A/μs	—	450	—	ns

*Pulse Test

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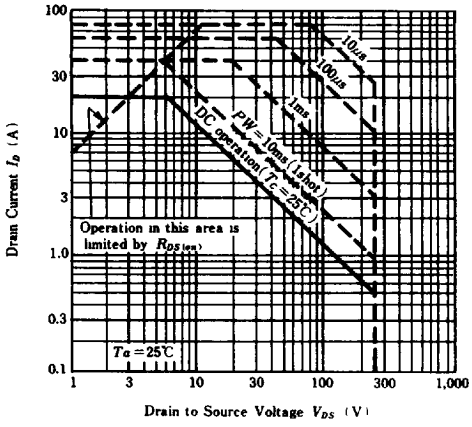
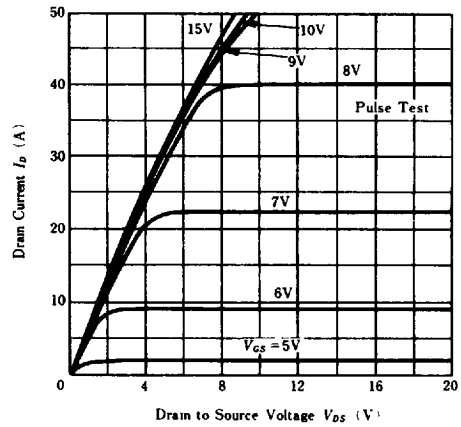
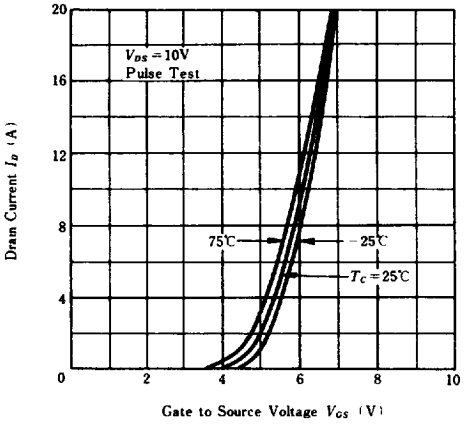
MAXIMUM SAFE OPERATION AREA



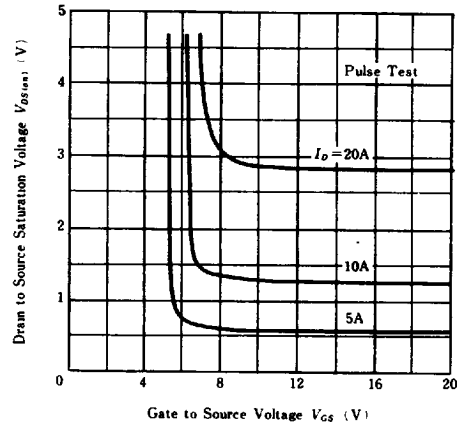
TYPICAL OUTPUT CHARACTERISTICS



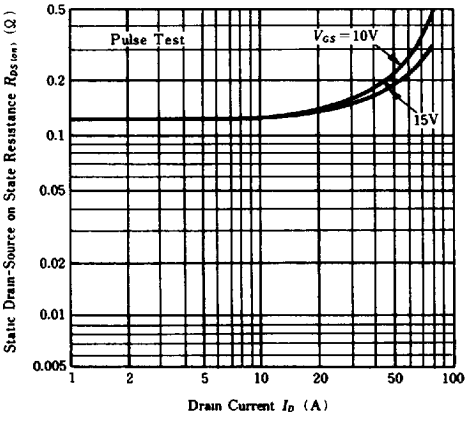
TYPICAL TRANSFER CHARACTERISTICS



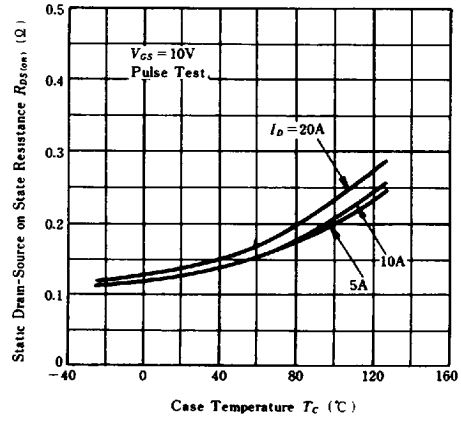
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



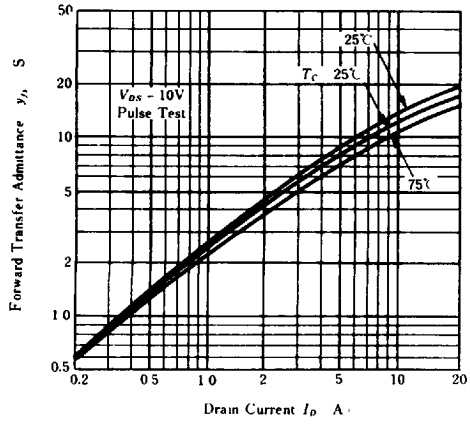
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT



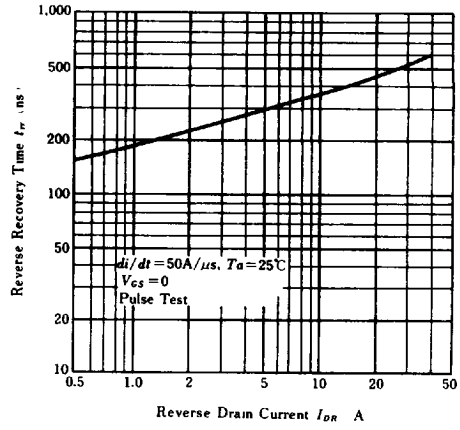
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



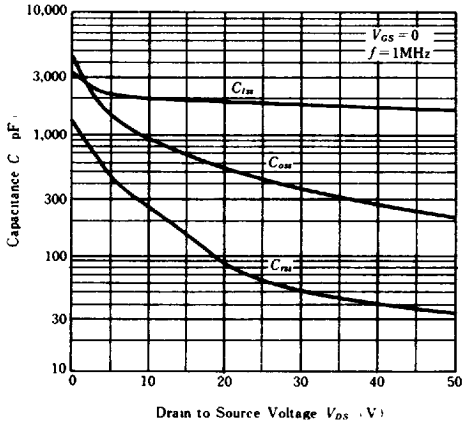
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



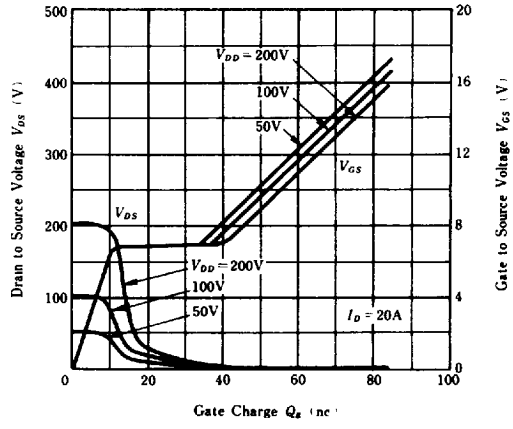
BODY-DRAIN DIODE REVERSE RECOVERY TIME



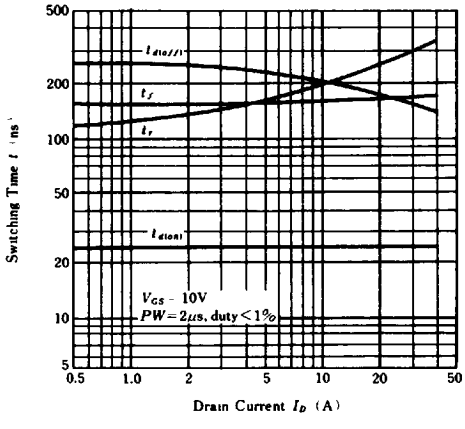
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



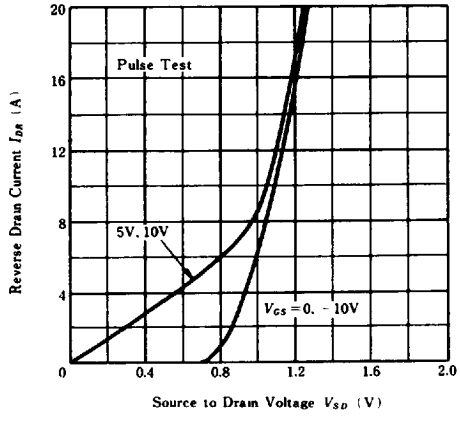
DYNAMIC INPUT CHARACTERISTICS



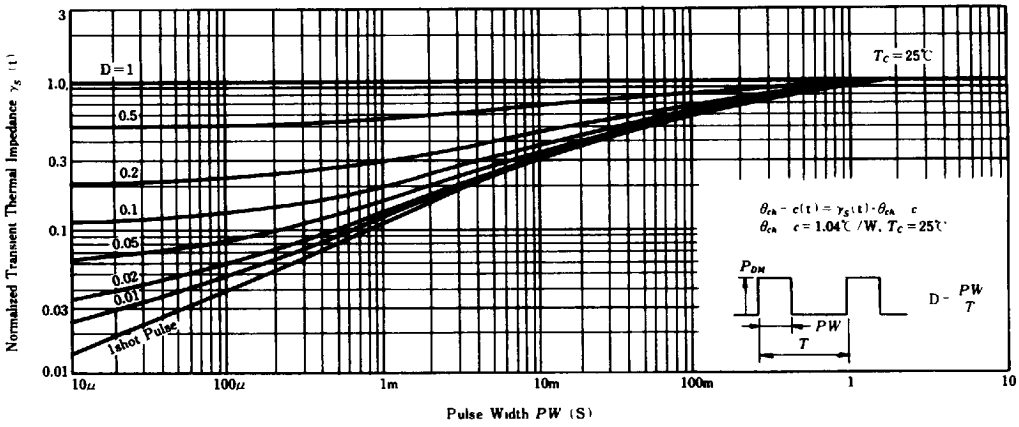
SWITCHING CHARACTERISTICS



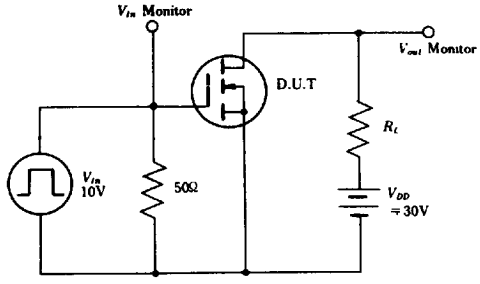
REVERSE DRAIN CURRENT VS. SOURCE TO DRAIN VOLTAGE



NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH



SWITCHING TIME TEST CIRCUIT



WAVEFORMS