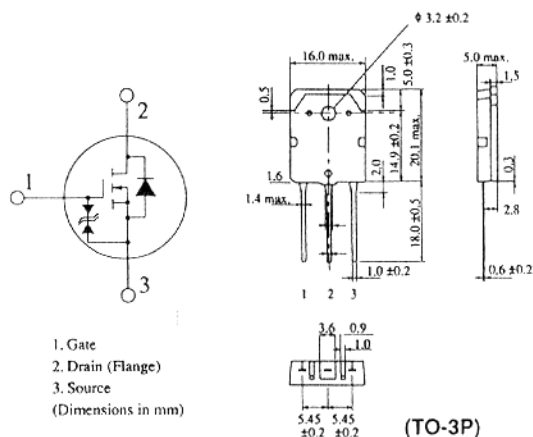


2SK1403, 2SK1403A

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 and DC-DC Converter



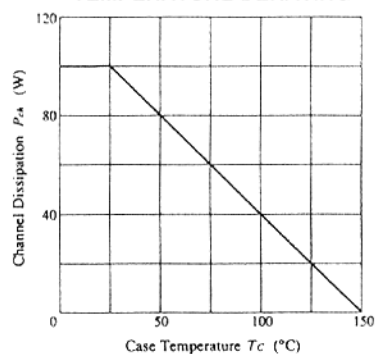
ABSOLUTE MAXIMUM RATINGS (Ta = 25°C)

Item	Symbol	K1403	K1403A	Unit
Drain-Source Voltage	V_{DSS}	600	650	V
Gate-Source Voltage	V_{GSS}	±30		V
Drain Current	I_D	8		A
Drain Peak Current	$I_{D(pk)}$ *	32		A
Body-Drain Diode Reverse Drain Current	I_{DR}	8		A
Channel Dissipation	P_{ch} **	100		W
Channel Temperature	T_{ch}	150		°C
Storage Temperature	T_{stg}	-55 ~ +150		°C

* PW ≤ 10 μs, duty cycle ≤ 1%

** Value at Tc = 25°C

POWER VS. TEMPERATURE DERATING

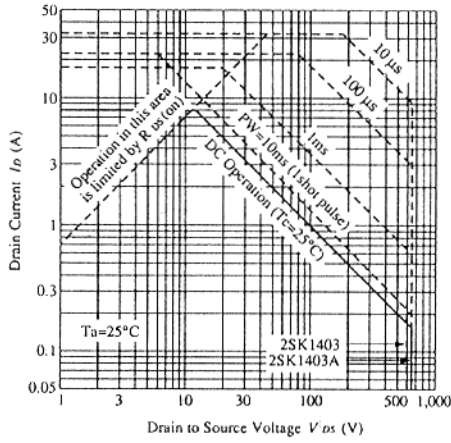


ELECTRICAL CHARACTERISTICS (Ta = 25°C)

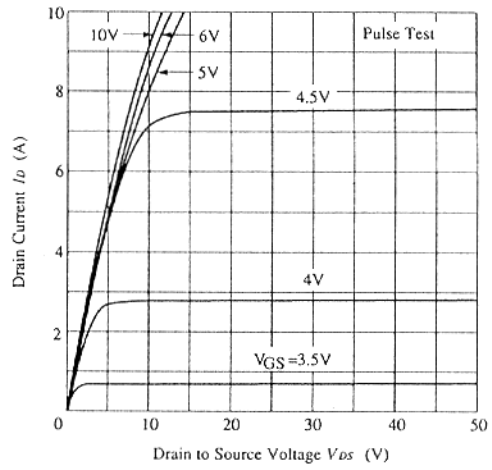
Item	Symbol	Test Condition	min.	typ.	max.	Unit
Drain-Source Breakdown Voltage	K1403	$I_D = 10\text{mA}, V_{GS} = 0$	600	—	—	V
	K1403A		650	—	—	
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$I_G = \pm 100\ \mu\text{A}, V_{DS} = 0$	±30	—	—	V
Gate-Source Leak Current	I_{GSS}	$V_{GS} = \pm 25\text{V}, V_{DS} = 0$	—	—	±10	μA
Zero Gate Voltage Drain Current	K1403	$V_{DS} = 500\text{V}, V_{GS} = 0$	—	—	250	μA
	K1403A		$V_{DS} = 550\text{V}, V_{GS} = 0$	—	—	
Gate-Source Cutoff Voltage	$V_{GS(off)}$	$I_D = 1\text{mA}, V_{DS} = 10\text{V}$	2.0	—	3.0	V
Static Drain-Source on State Resistance	K1403	$I_D = 4\text{A}, V_{GS} = 10\text{V}^*$	—	0.9	1.3	Ω
	K1403A		—	1.0	1.4	
Forward Transfer Admittance	$ y_{fs} $	$I_D = 4\text{A}, V_{DS} = 10\text{V}^*$	4.0	6.5	—	S
Input Capacitance	C_{iss}	$V_{DS} = 10\text{V}, V_{GS} = 0, f = 1\text{MHz}$	—	1180	—	pF
Output Capacitance	C_{oss}		—	265	—	pF
Reverse Transfer Capacitance	C_{rss}		—	50	—	pF
Turn-On Delay Time	$t_{d(on)}$	$I_D = 4\text{A}, V_{GS} = 10\text{V}, R_L = 7.5\ \Omega$	—	15	—	ns
Rise Time	t_r		—	50	—	ns
Turn-off Delay Time	$t_{d(off)}$		—	105	—	ns
Fall Time	t_f		—	45	—	ns
Body-Drain Diode Forward Voltage	V_{DF}	$I_F = 8\text{A}, V_{GS} = 0$	—	0.95	—	V
Body-Drain Diode Reverse Recovery Time	t_{rr}	$I_F = 8\text{A}, V_{GS} = 0, di_F/dt = 100\text{A}/\mu\text{s}$	—	420	—	ns

* Pulse Test

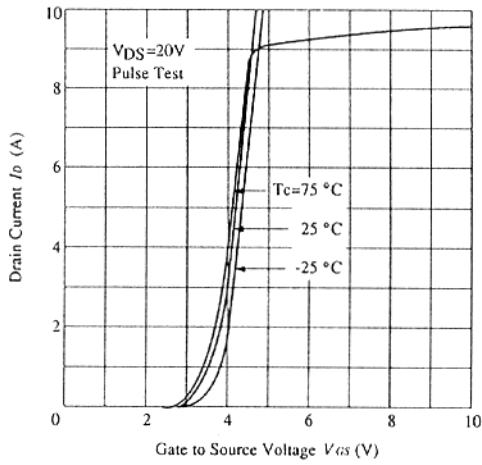
MAXIMUM SAFE OPERATION AREA



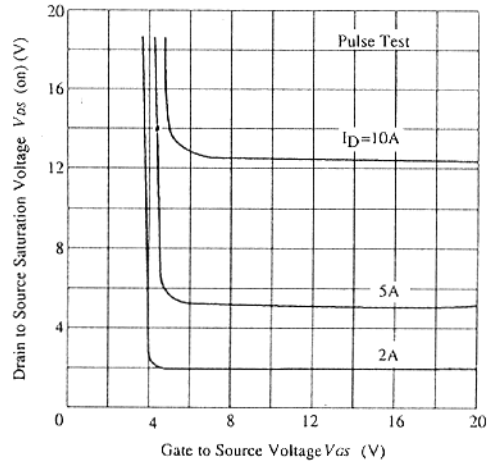
TYPICAL OUTPUT CHARACTERISTICS



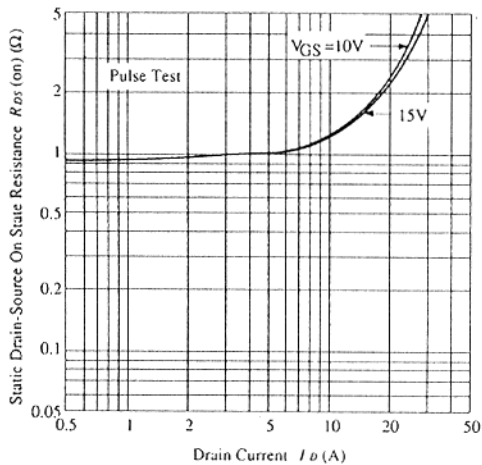
TYPICAL TRANSFER CHARACTERISTICS



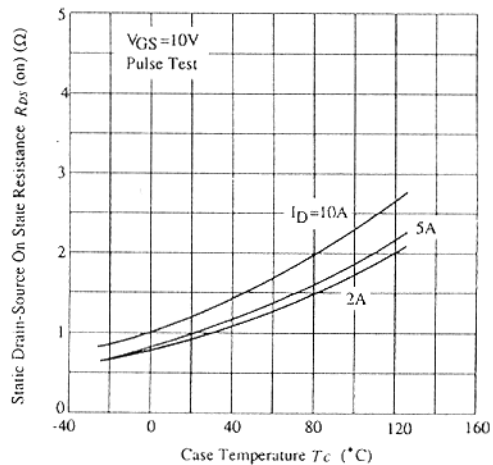
DRAIN-SOURCE SATURATION VOLTAGE VS. GATE-SOURCE VOLTAGE



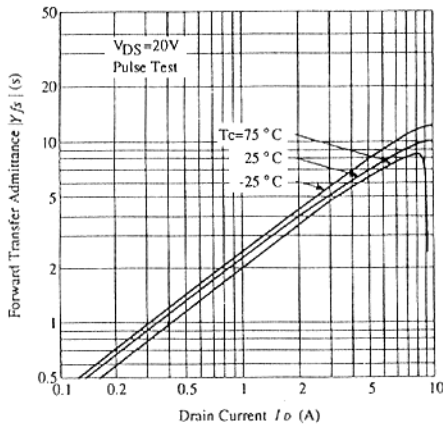
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. DRAIN CURRENT



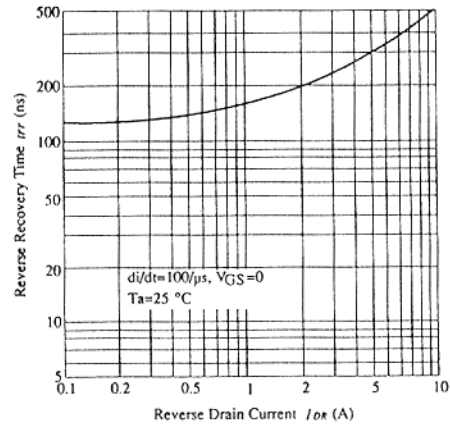
STATIC DRAIN-SOURCE ON STATE RESISTANCE VS. TEMPERATURE



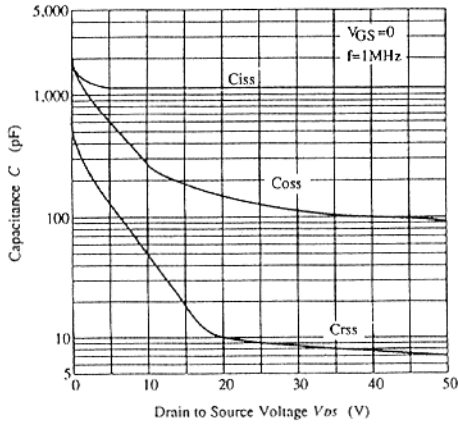
FORWARD TRANSFER ADMITTANCE VS. DRAIN CURRENT



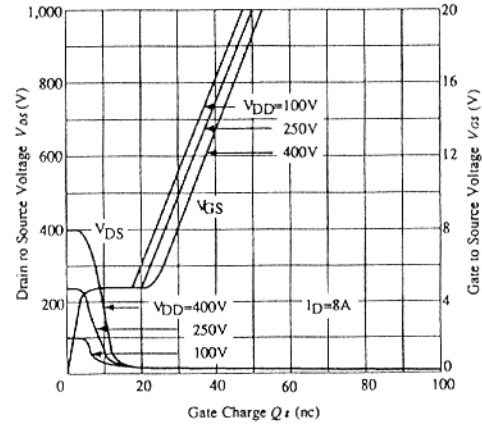
BODY-DRAIN DIODE REVERSE RECOVERY TIME



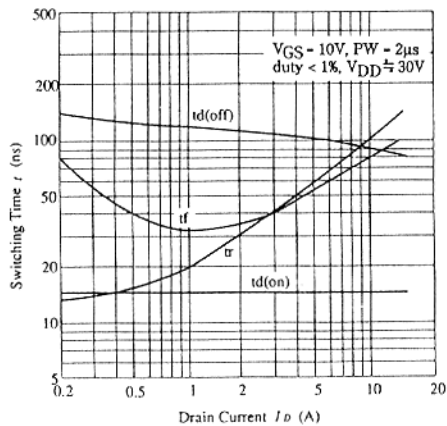
TYPICAL CAPACITANCE VS. DRAIN-SOURCE VOLTAGE



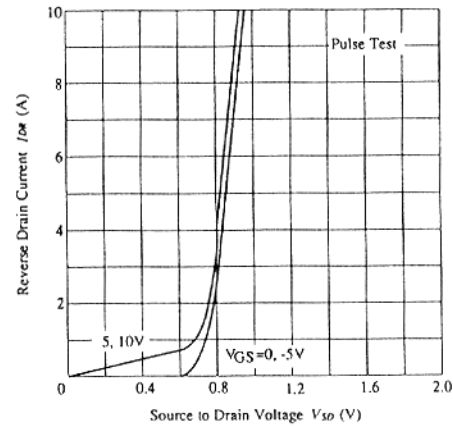
DYNAMIC INPUT CHARACTERISTICS



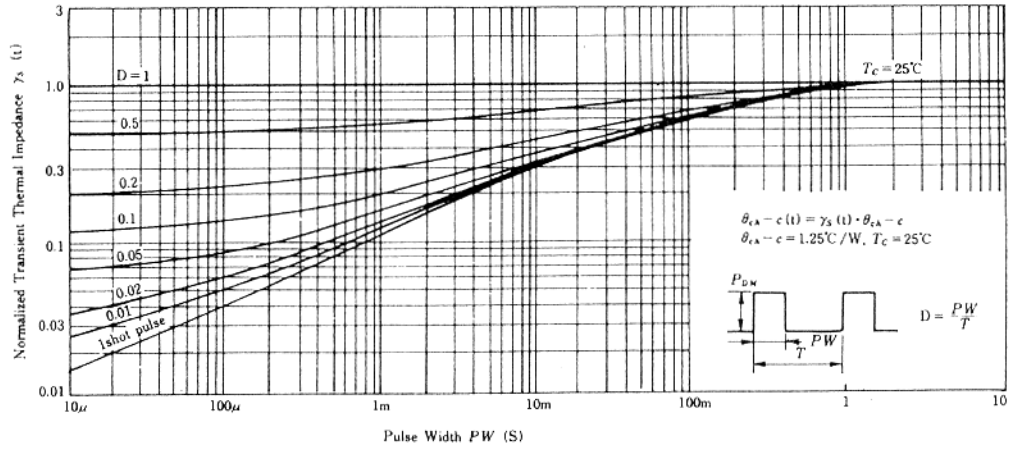
SWITCHING CHARACTERISTICS



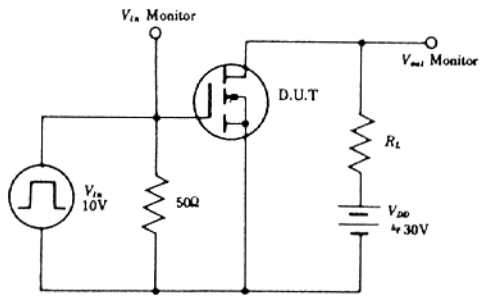
REVERSE DRAIN CURRENT VS. SOURCE TO DRAIN VOLTAGE



NORMALIZED TRANSIENT THERMAL IMPEDANCE VS. PULSE WIDTH



SWITCHING TIME TEST CIRCUIT



WAVEFORMS

