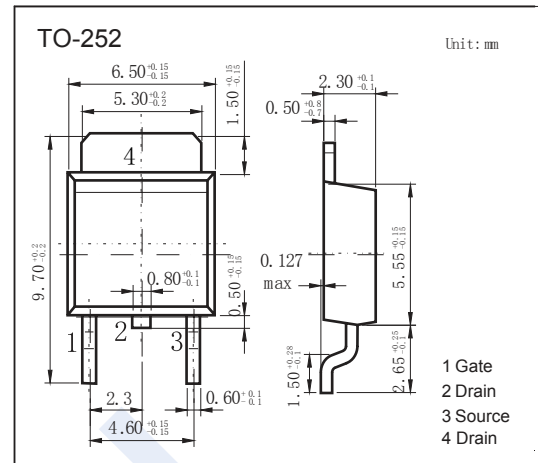


N-Channel MOSFET

2SK3225

■ Features

- $V_{DS} (V) = 60V$
- $I_D = 34 A (V_{GS} = 10V)$
- $R_{DS(ON)} < 18m\Omega (V_{GS} = 10V)$
- $R_{DS(ON)} < 27m\Omega (V_{GS} = 4V)$
- Low input capacitance
 $C_{iss} = 2100 pF TYP$



■ Absolute Maximum Ratings $T_a = 25^\circ C$

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	$V_{GS(AC)}$	± 20	
Gate-Source Voltage	$V_{GS(DC)}$	+20,-10	
Continuous Drain Current	I_D	± 34	A
Pulsed Drain Current (Note.1)	I_{DM}	± 136	
Single Avalanche Current (Note.2)	I_{AS}	15	
Single Avalanche Energy (Note.2)	EAS	22	mJ
Power Dissipation $T_c = 25^\circ C$ $T_a = 25^\circ C$	P_D	40	W
		2	
Junction Temperature	T_J	150	$^\circ C$
Storage Temperature Range	T_{stg}	-55 to 150	

Note.1: $PW \leq 10 \mu s$, Duty cycle $\leq 1\%$

Note.2: Starting $T_{ch} = 25^\circ C$, $V_{DD} = 30 V$, $R_G = 25 \Omega$, $V_{GS} = 20 \rightarrow 0 V$

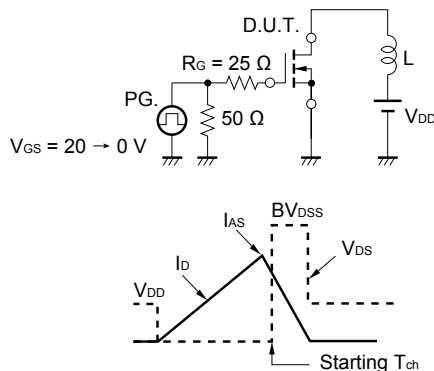
N-Channel MOSFET

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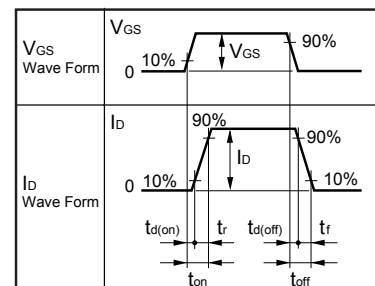
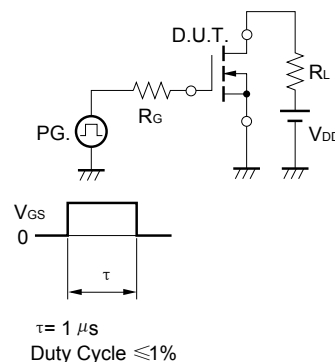
■ Electrical Characteristics $T_a = 25^\circ\text{C}$

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V_{DS}	$I_D = 250\ \mu\text{A}$, $V_{GS} = 0\text{V}$	60			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60\text{V}$, $V_{GS} = 0\text{V}$			10	μA
Gate-Body Leakage Current	I_{GSS}	$V_{DS} = 0\text{V}$, $V_{GS} = \pm 20\text{V}$			± 10	μA
Gate Threshold Cut off	$V_{GS(off)}$	$V_{DS} = 10\text{V}$, $I_D = 1\text{mA}$	1		2	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 17\text{A}$			18	$\text{m}\Omega$
		$V_{GS} = 4\text{V}$, $I_D = 17\text{A}$			27	
Forward Transconductance	g_{FS}	$V_{DS} = 10\text{V}$, $I_D = 17\text{A}$	13	27		S
Input Capacitance	C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 10\text{V}$, $f = 1\text{MHz}$		2100		pF
Output Capacitance	C_{oss}			550		
Reverse Transfer Capacitance	C_{rss}			220		
Total Gate Charge	Q_g	$V_{GS} = 10\text{V}$, $V_{DS} = 48\text{V}$, $I_D = 34\text{A}$		45		nC
Gate Source Charge	Q_{gs}			7		
Gate Drain Charge	Q_{gd}			13		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 30\text{V}$, $I_D = 17\text{A}$, $R_G = 10\ \Omega$		32		ns
Turn-On Rise Time	t_r			300		
Turn-Off Delay Time	$t_{d(off)}$			110		
Turn-Off Fall Time	t_f			140		
Body Diode Reverse Recovery Time	t_{rr}	$I_F = 34\text{A}$, $V_{GS} = 0$, $di/dt = 100\text{A}/\mu\text{s}$		60		nC
Body Diode Reverse Recovery Charge	Q_{rr}			95		
Maximum Body-Diode Continuous Current	I_S				34	A
Diode Forward Voltage	V_{SD}	$I_S = 34\text{A}$, $V_{GS} = 0\text{V}$		0.94		V

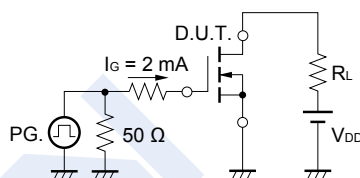
Test Circuit 1 Avalanche Capability



Test Circuit 2 Switching Time



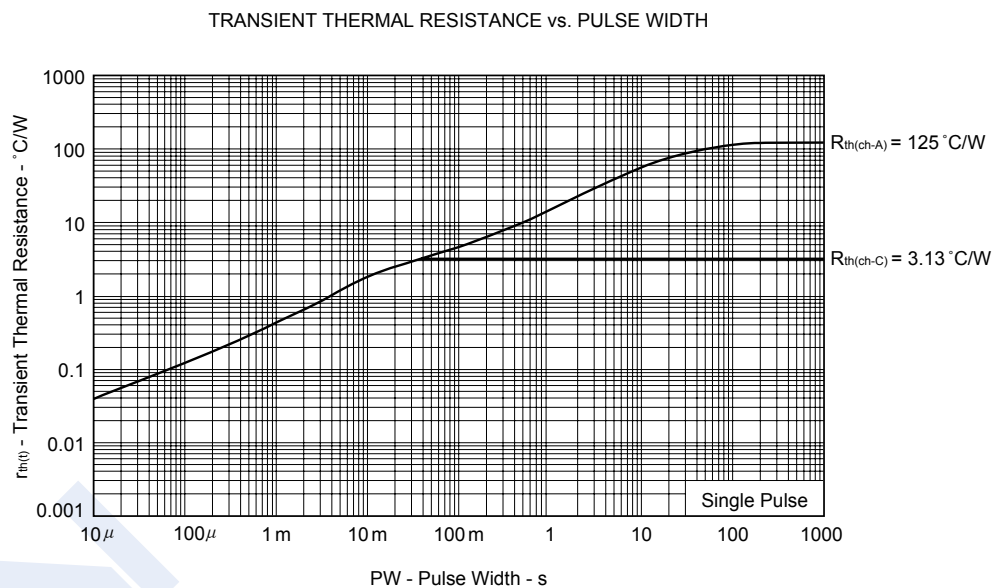
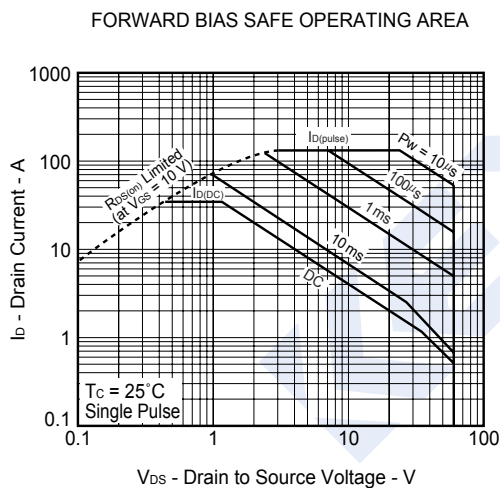
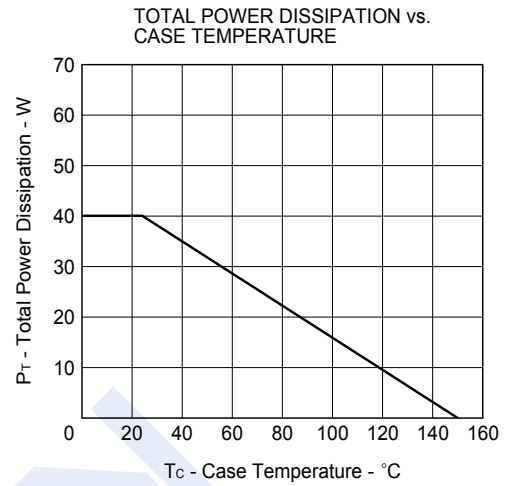
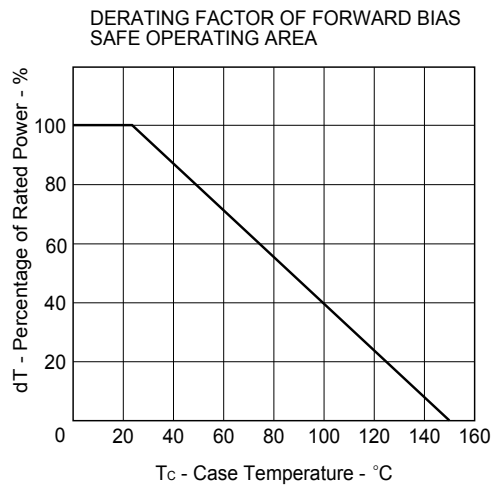
Test Circuit 3 Gate Charge



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Typical Characteristics

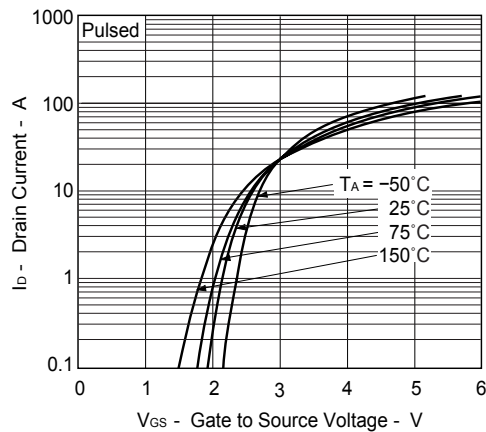


N-Channel MOSFET

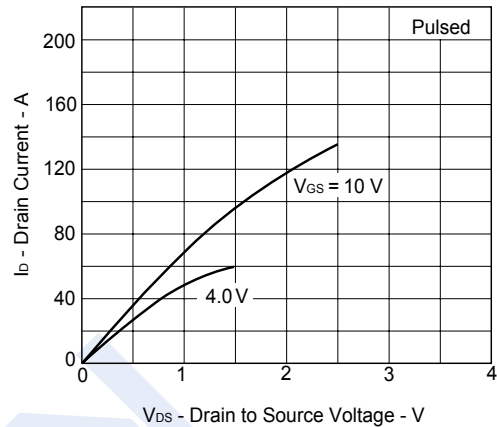
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Typical Characteristics

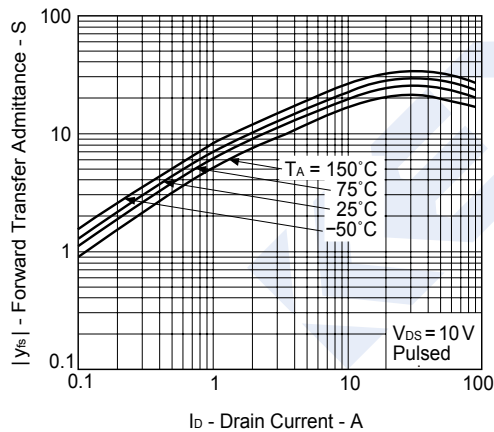
FORWARD TRANSFER CHARACTERISTICS



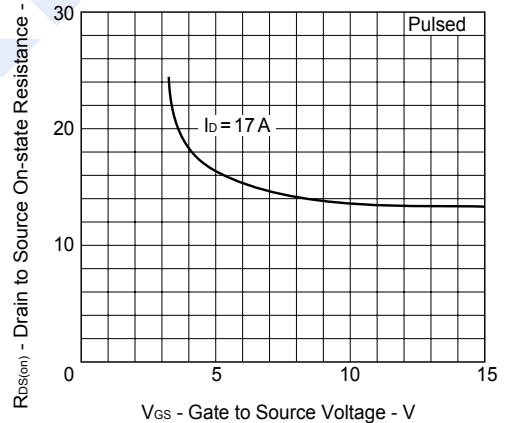
DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE



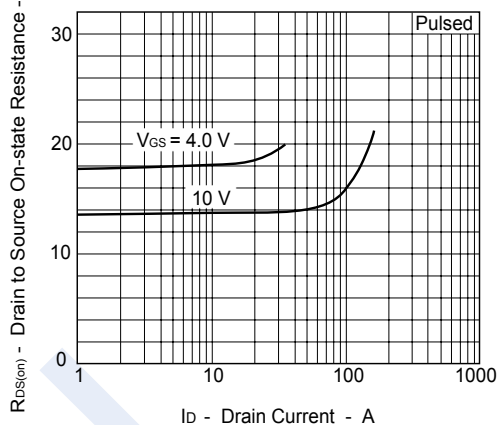
FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT



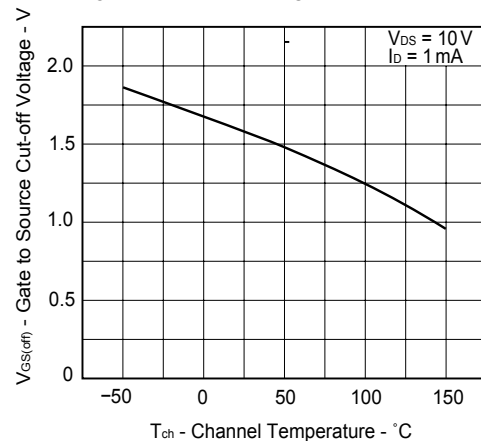
DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE



DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT



GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE

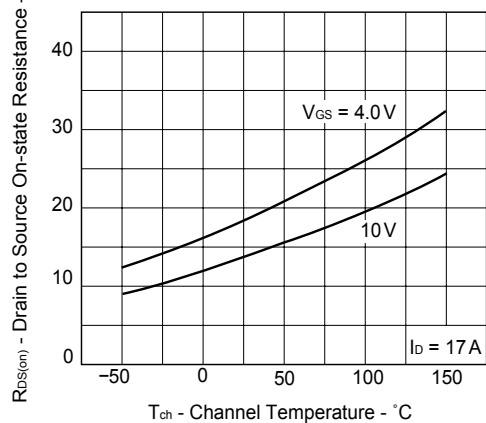


N-Channel MOSFET

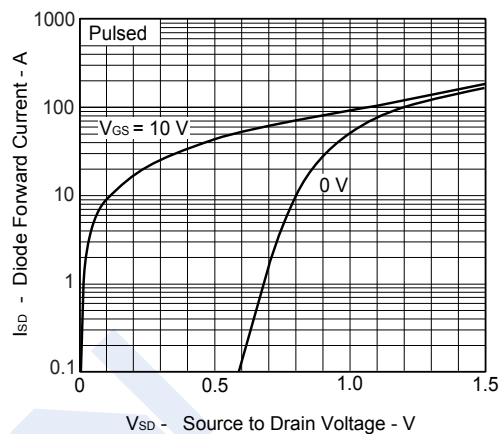
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Typical Characteristics

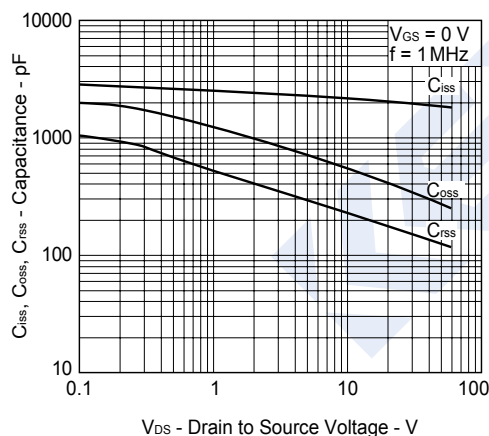
DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE



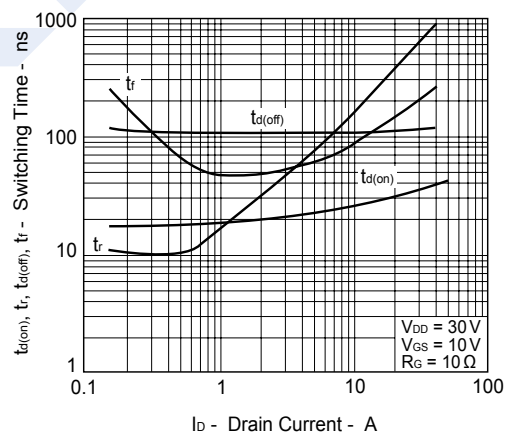
SOURCE TO DRAIN DIODE FORWARD VOLTAGE



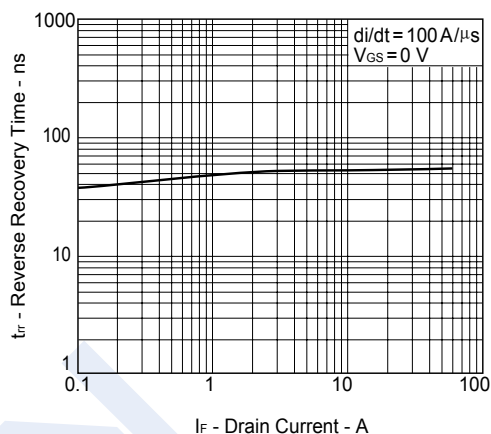
CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE



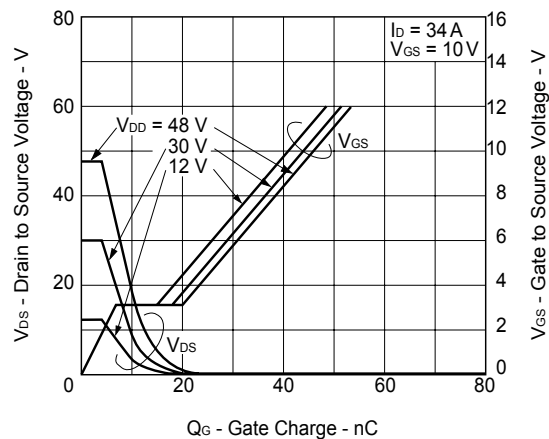
SWITCHING CHARACTERISTICS



REVERSE RECOVERY TIME vs. DRAIN CURRENT



DYNAMIC INPUT/OUTPUT CHARACTERISTICS



N-Channel MOSFET

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■ Typical Characteristics

