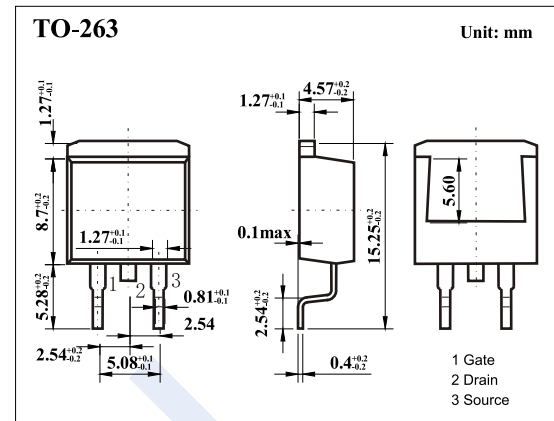
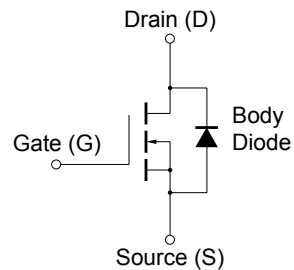


N-Channel MOSFET

2SK3305-ZJ

■ Features

- $V_{DS} = 500V$
- $I_D = 5A$ ($V_{GS} = 10V$)
- $R_{DS(ON)} < 1.5\Omega$ ($V_{GS} = 10V$)
- Gate voltage rating: $\pm 30V$
- Avalanche capability ratings



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

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V _{DS}	500	V
Gate-Source Voltage	V _{GS}	±30	
Continuous Drain Current	I _D	5	A
Pulsed Drain Current (Note.1)	I _{DM}	20	
Single Avalanche Current (Note.2)	I _{AS}	5	
Power Dissipation T _c = 25°C T _a = 25°C	P _D	75	W
		1.5	
Single Avalanche Energy (Note.2)	E _{AS}	125	mJ
Junction Temperature	T _J	150	°C
Storage Temperature Range	T _{stg}	-55 to 150	

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

Note.2: Starting $T_J = 25^\circ\text{C}$, $V_{DD} = 150\text{ V}$, $R_G = 25\ \Omega$, $V_{GS} = 20\text{ V} \rightarrow 0\text{ V}$

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■ Electrical Characteristics Ta = 25°C

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	V _{DSS}	I _D =250 μ A, V _{GS} =0V	500			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} =500V, V _{GS} =0V			100	μ A
Gate-Body Leakage Current	I _{GSS}	V _{DS} =0V, V _{GS} = $\pm$ 30V			$\pm$ 100	nA
Gate to Source Cut-off Voltage	V _{GS(off)}	V _{DS} =10V, I _D =1mA	2.5		3.5	V
Static Drain-Source On-Resistance	R _{DS(on)}	V _{GS} =10V, I _D =2.5A			1.5	Ω
Forward Transconductance	g _{FS}	V _{DS} =10V, I _D =2.5A	1	3		S
Input Capacitance	C _{iss}	V _{GS} =0V, V _{DS} =10V, f=1MHz		700		pF
Output Capacitance	C _{oss}			115		
Reverse Transfer Capacitance	C _{rss}			6		
Total Gate Charge	Q _g	V _{GS} =10V, V _{DS} =400V, I _D =5A		13		nC
Gate Source Charge	Q _{gs}			4		
Gate Drain Charge	Q _{gd}			4.5		
Turn-On DelayTime	t _{d(on)}	V _{DD} = 150 V, I _D = 2.5 A, V _{GS(on)} = 10 V, R _G = 10 Ω , R _L = 60 Ω		16		ns
Turn-On Rise Time	t _r			3		
Turn-Off DelayTime	t _{d(off)}			33		
Turn-Off Fall Time	t _f			5.5		
Body Diode Reverse Recovery Time	t _{rr}	I _F = 5A, V _{GS} =0, di/dt= 50A/ μ s		600		ns
Body Diode Reverse Recovery Charge	Q _{rr}			3.3		
Diode Forward Voltage	V _{SD}	I _F =5A, V _{GS} =0V		0.9		V

■ Typical Characteristics

Figure1. DERATING FACTOR OF FORWARD BIAS
SAFE OPERATING AREA

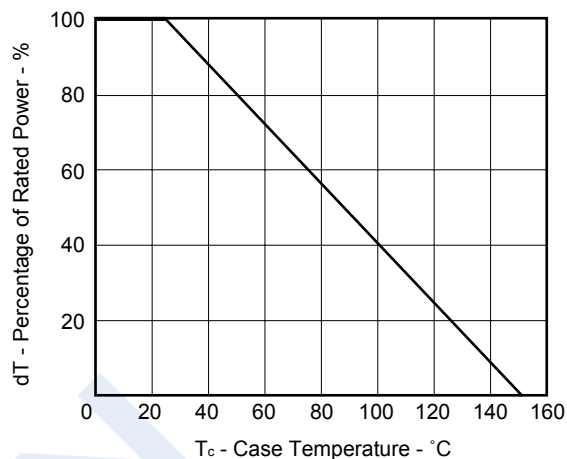
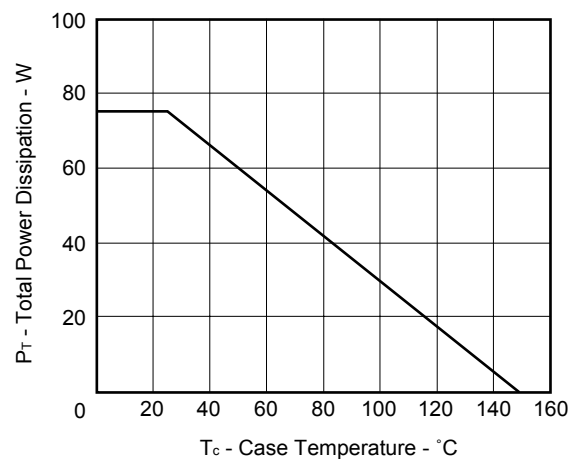


Figure2. TOTAL POWER DISSIPATION vs.
CASE TEMPERATURE



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■ Typical Characteristics

Figure3. FORWARD BIAS SAFE OPERATING AREA

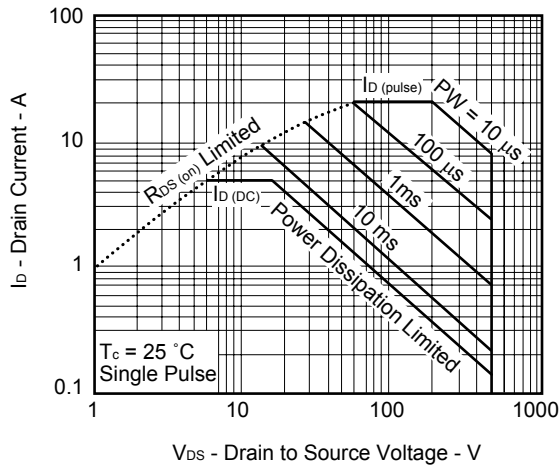


Figure4. DRAIN CURRENT vs. DRAIN TO SOURCE VOLTAGE

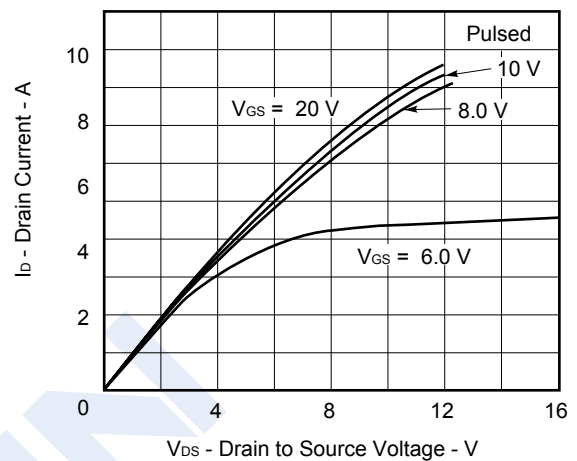


Figure5. DRAIN CURRENT vs. GATE TO SOURCE VOLTAGE

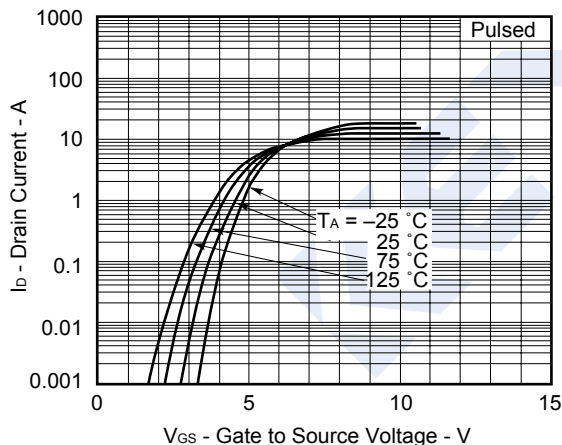
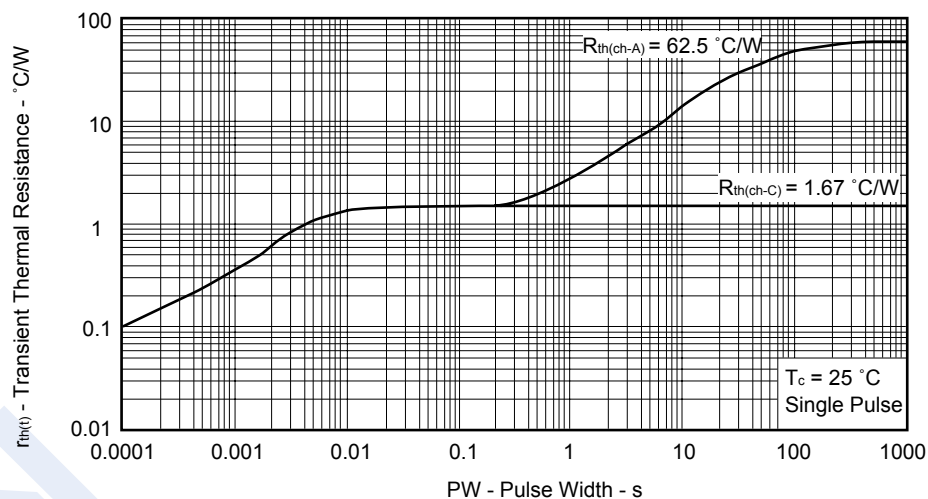


Figure6. TRANSIENT THERMAL RESISTANCE vs. PULSE WIDTH



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Figure7. FORWARD TRANSFER ADMITTANCE vs. DRAIN CURRENT

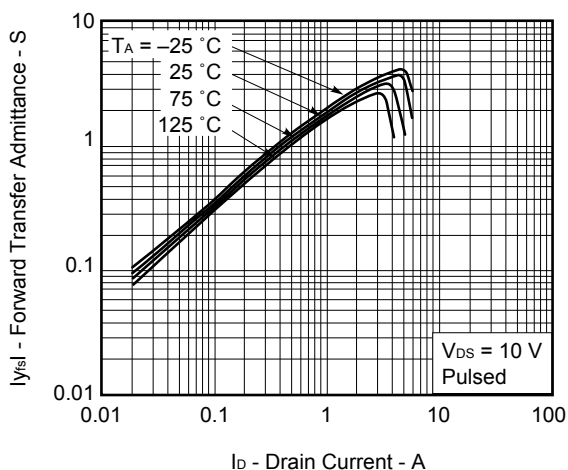


Figure8. DRAIN TO SOURCE ON-STATE RESISTANCE vs. GATE TO SOURCE VOLTAGE

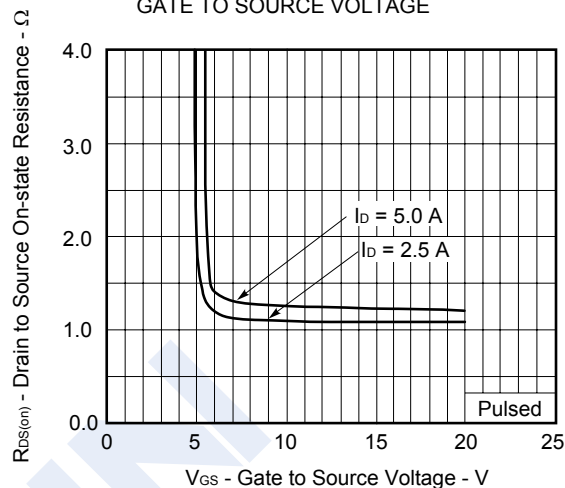


Figure9. DRAIN TO SOURCE ON-STATE RESISTANCE vs. DRAIN CURRENT

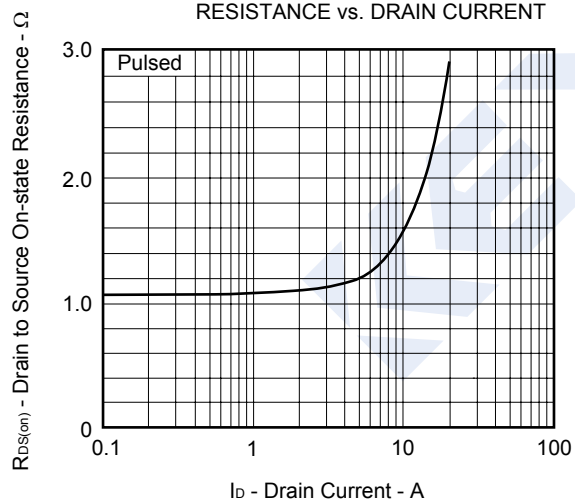


Figure10. GATE TO SOURCE CUT-OFF VOLTAGE vs. CHANNEL TEMPERATURE

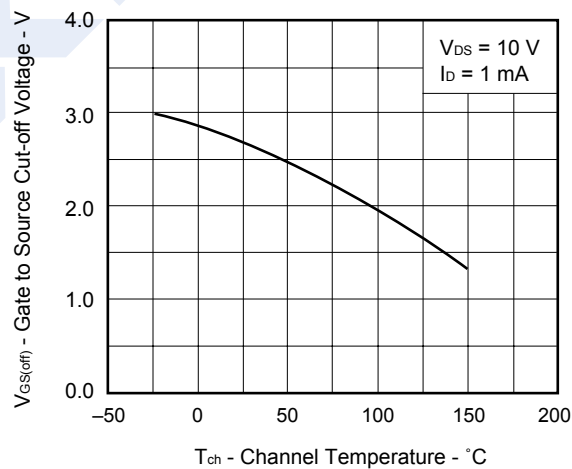


Figure11. DRAIN TO SOURCE ON-STATE RESISTANCE vs. CHANNEL TEMPERATURE

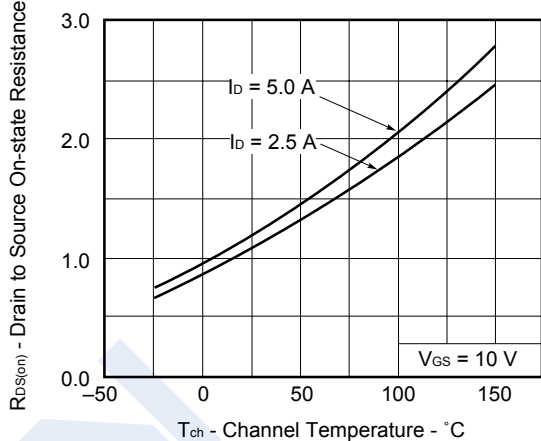
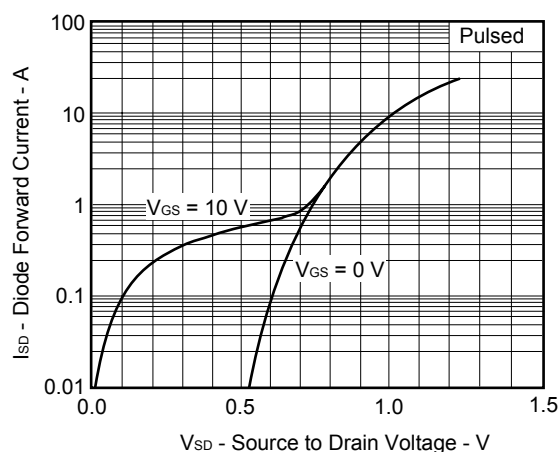


Figure12. SOURCE TO DRAIN DIODE FORWARD VOLTAGE



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Typical Characteristics

Figure13. CAPACITANCE vs. DRAIN TO SOURCE VOLTAGE

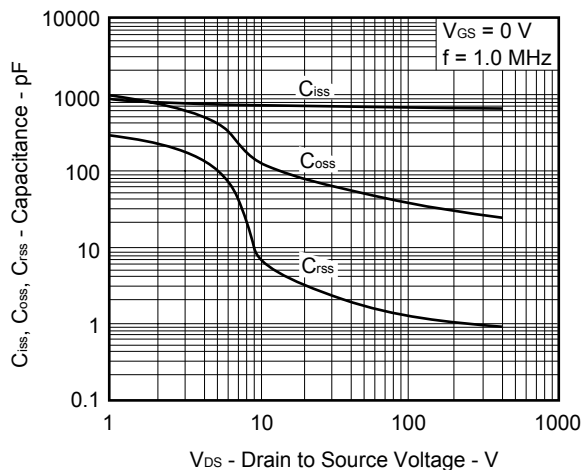


Figure14. SWITCHING CHARACTERISTICS

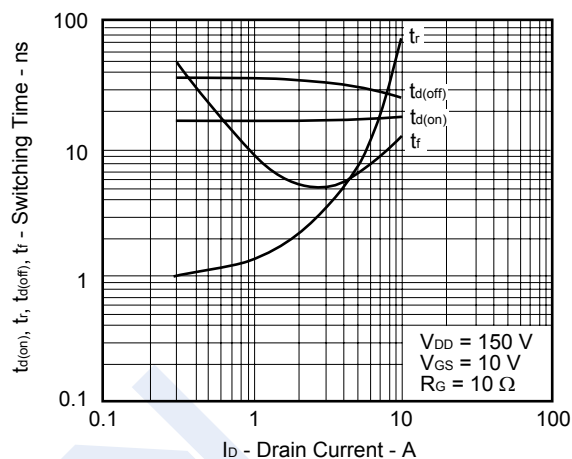


Figure15. REVERSE RECOVERY TIME vs. DRAIN CURRENT

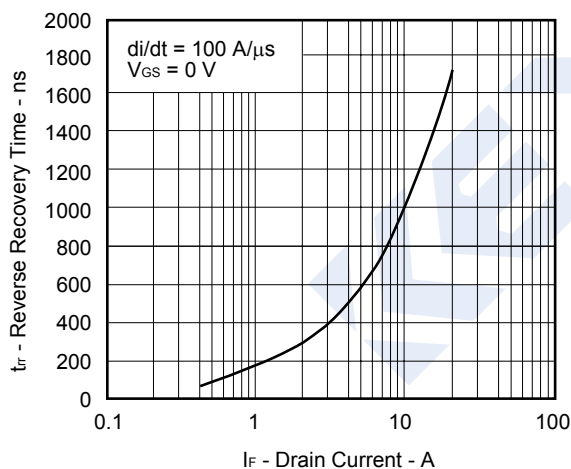


Figure16. DYNAMIC INPUT/OUTPUT CHARACTERISTICS

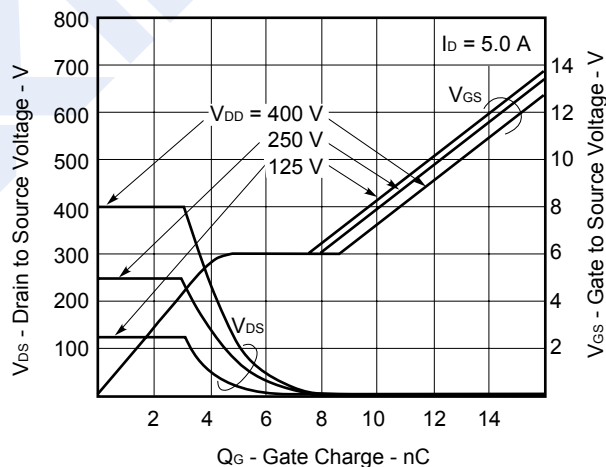


Figure17. SINGLE AVALANCHE ENERGY vs STARTING CHANNEL TEMPERATURE

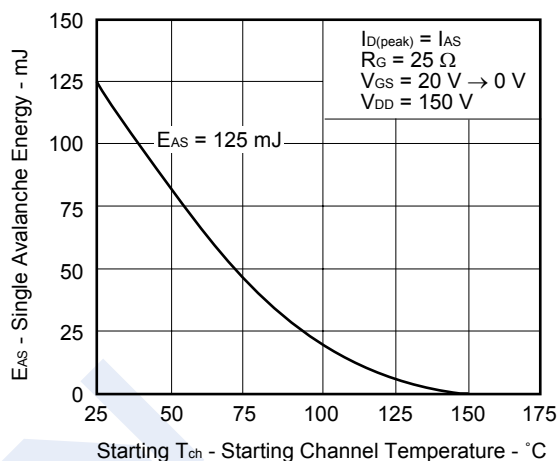


Figure18. SINGLE AVALANCHE CURRENT vs INDUCTIVE LOAD

