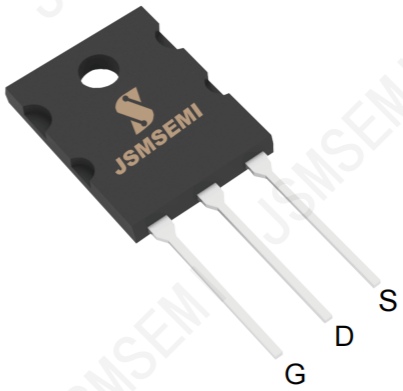
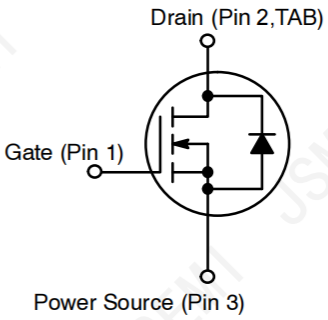
Product Summary

- V_{DS} 300V
- I_D 90A
- $R_{DS(ON)}$(at V_{GS}=10V) ＜30mΩ
- 100% EAS Tested
- 100% ▽V_{DS} Tested



General Description

- Vertical Double-diffused MOSFET technology
- Excellent package for heat dissipation
- High density cell design for low $R_{DS(ON)}$
- Moisture Sensitivity Level 1
- Epoxy Meets UL 94 V-0 Flammability Rating
- Halogen Free



Applications

- Power switching application
- Uninterruptible power supply
- DC-DC convertor
- Motor drivers

Absolute Maximum Ratings T_C = 25℃, unless otherwise noted

Parameter	Symbol	Value	Unit
		TO-264	
Drain-Source Voltage (V_{GS} = 0V)	V_{DSS}	300	V
Continuous Drain Current V_{GS} = 10V T_C = 25℃	I_D	90	A
Pulsed Drain Current (note1)	I_{DM}	360	A
Gate-Source Voltage	V_{GSS}	±20	V
Single Pulse Avalanche Energy (note2)	E_{AS}	1960.2	mJ
Avalanche Current (note1)	I_{AS}	19.8	A
Repetitive Avalanche Energy (note1)	E_{AR}	1176.1	mJ
Power Dissipation (T_C = 25℃)	P_D	600	W
Peak Diode Recovery dv/dt (note1)	dv/dt	5.0	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+150	℃

Thermal Resistance

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	R_{thJC}	0.89	℃/W
Thermal Resistance, Junction-to-Ambient	R_{thJA}	60	

Specifications T_J = 25ºC, unless otherwise noted

Parameter	Symbol	Test Conditions	Value			Unit
			Min.	Typ.	Max.	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	300	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 40V, V_{GS} = 0V, T_J = 25ºC	--	--	1	μA
		V_{DS} = 32V, V_{GS} = 0V, T_J = 125ºC	--	--	100	
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS} , I_D = 250μA	2.0	--	4.0	V
Drain-Source On-Resistance (Note3)	$R_{DS(on)}$	V_{GS} = 10V, I_D = 40A	--	25	30	mΩ
Dynamic						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1.0MHz	--	5784	--	pF
Output Capacitance	C_{oss}		--	893	--	
Reverse Transfer Capacitance	C_{rss}		--	561	--	
Total Gate Charge	Q_g	V_{DD} 20V, I_D = 190A, V_{GS} = 10V	--	367	--	nC
Gate-Source Charge	Q_{gs}		--	33.8	--	
Gate-Drain Charge	Q_{gd}		--	177	--	
Turn-on Delay Time	$t_{d(on)}$	VDD = 20V, ID =190A, RG = 10 Ω, VGS = 10V	--	55	--	ns
Turn-on Rise Time	t_r		--	165	--	
Turn-off Delay Time	$t_{d(off)}$		--	1050	--	
Turn-off Fall Time	t_f		--	367	--	
Drain-Source Body Diode Characteristics						
Continuous Body Diode Current	I_S	T_C = 25 °C	--	--	90	A
Pulsed Diode Forward Current	I_{SM}		--	--	360	
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = 95A, V_{GS} = 0V	--	--	1.4	V
Reverse Recovery Time	t_{rr}	V_{GS} = 0V, I_S = 190A, di_F/dt =100A/μs	--	360	--	ns
Reverse Recovery Charge	Q_{rr}		--	5.61	--	μC

Notes

1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. L = 10mH, VDD = 50V, RG = 25 Ω, Starting TJ = 25 ºC
3. Pulse Test: Pulse width ≤ 300μs, Duty Cycle ≤ 1%

Ordering Information

Order number	Package	Marking	Operation Temperature Range	MSL Grade	Ship,Quantity	Green
IXTK88N30P-JSM	TO-264	IXTK88N30P	-55 to 150°C	1	TUBE,240	Rohs

Typical Characteristics T_J = 25°C, unless otherwise noted

Figure 1. Output Characteristics (T_J = 25°C)

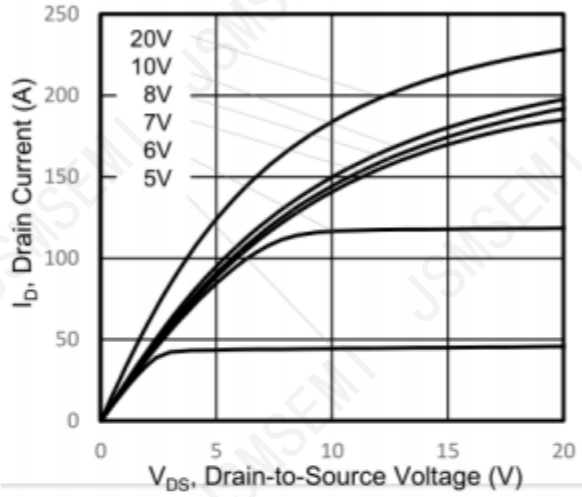


Figure 2. Body Diode Forward Voltage

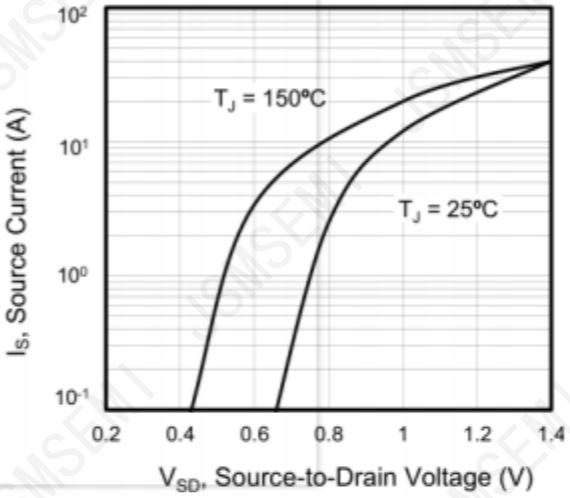


Figure 3. Drain Current vs. Temperature

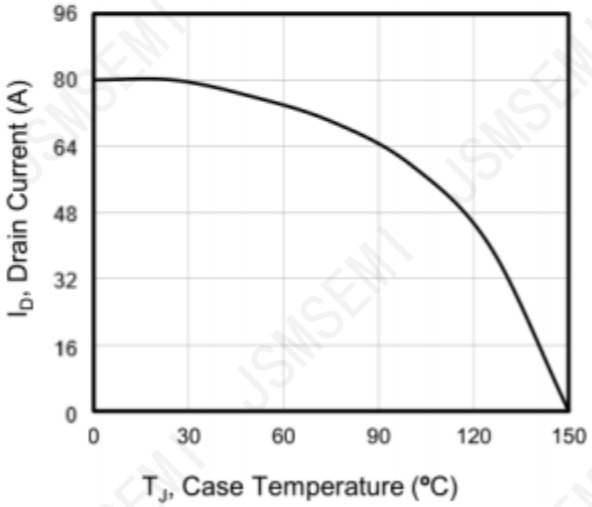


Figure 4. BV_{DSS} Variation vs. Temperature

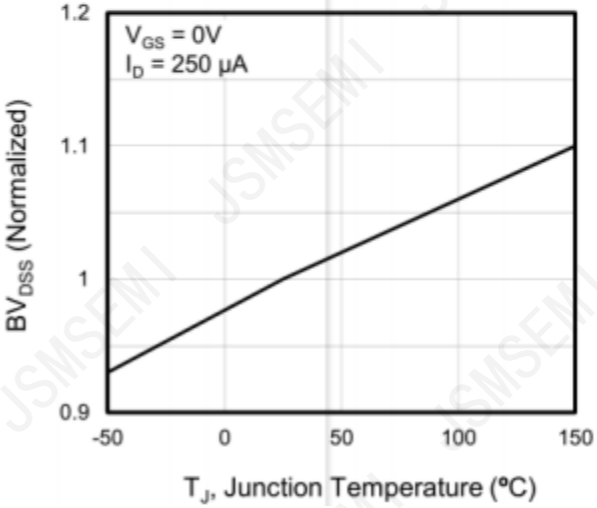


Figure 5. Transfer Characteristics

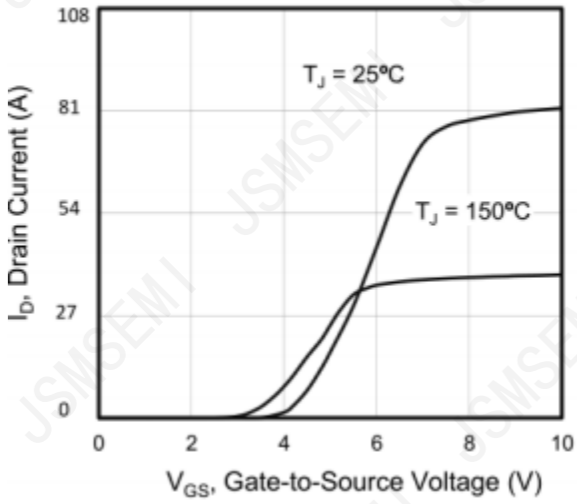


Figure 6. On-Resistance vs. Temperature

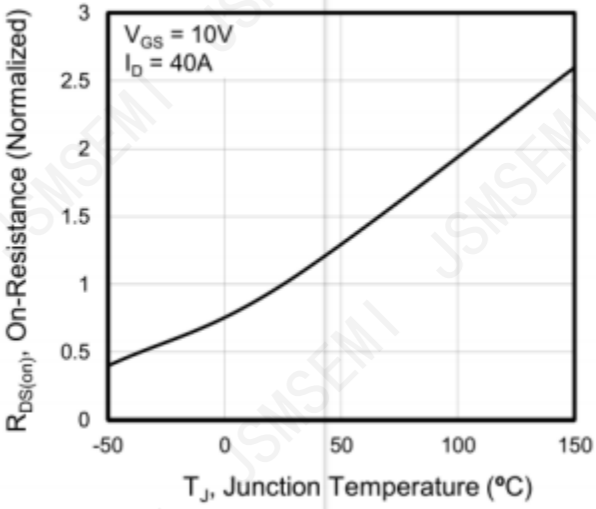


Figure 7. Capacitance

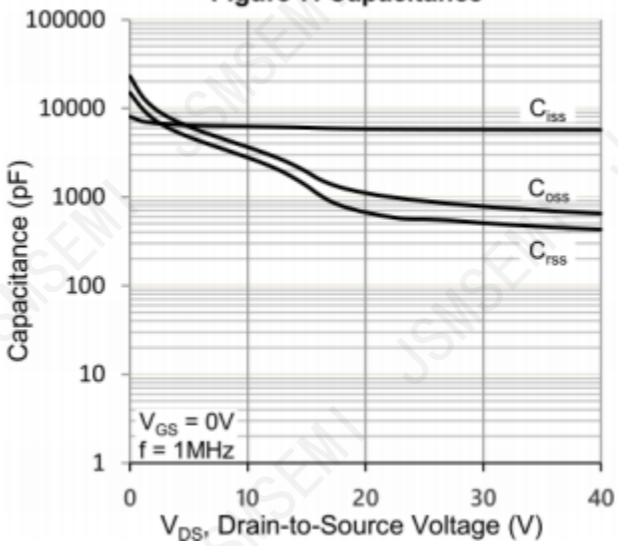


Figure 8. Gate Charge

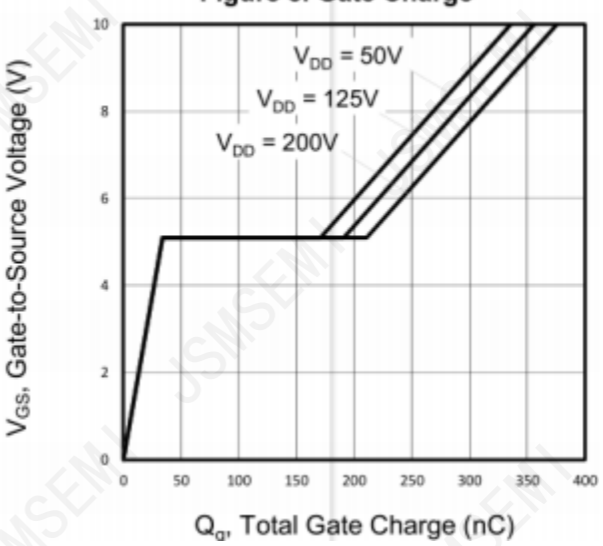


Figure 10. Transient Thermal Impedance

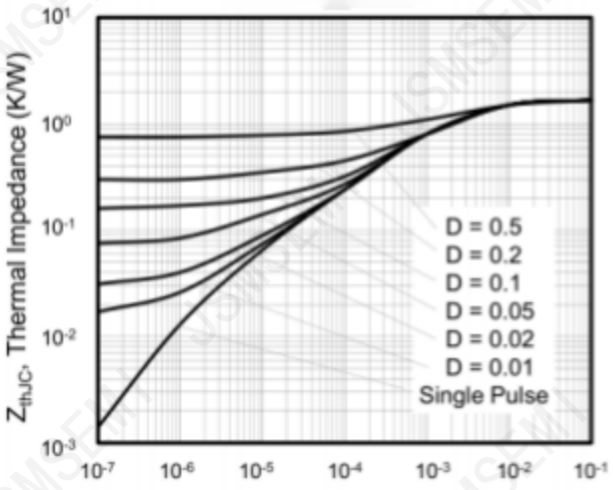


Figure A: Gate Charge Test Circuit and Waveform

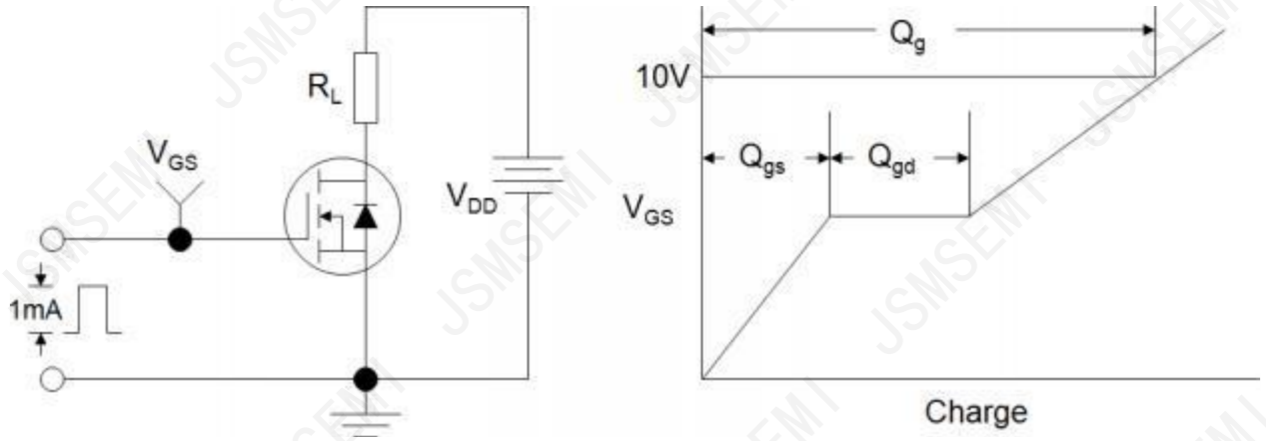


Figure B： Resistive Switching Test Circuit and Waveform

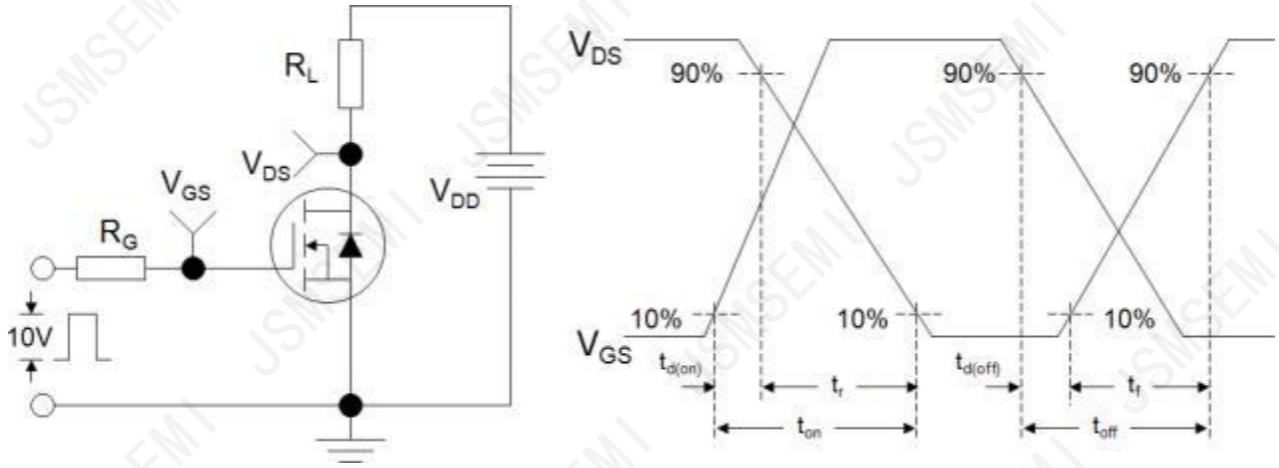
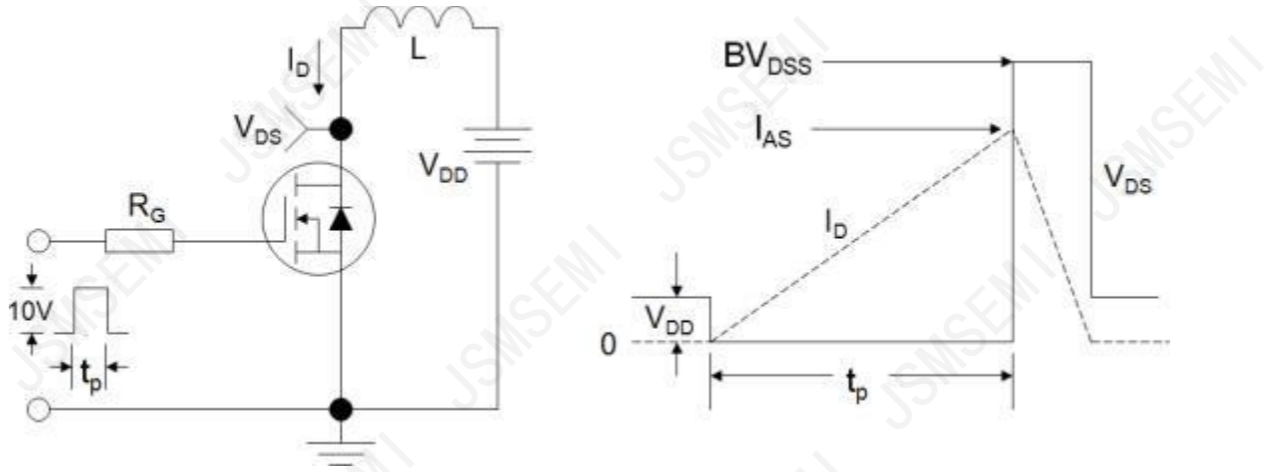
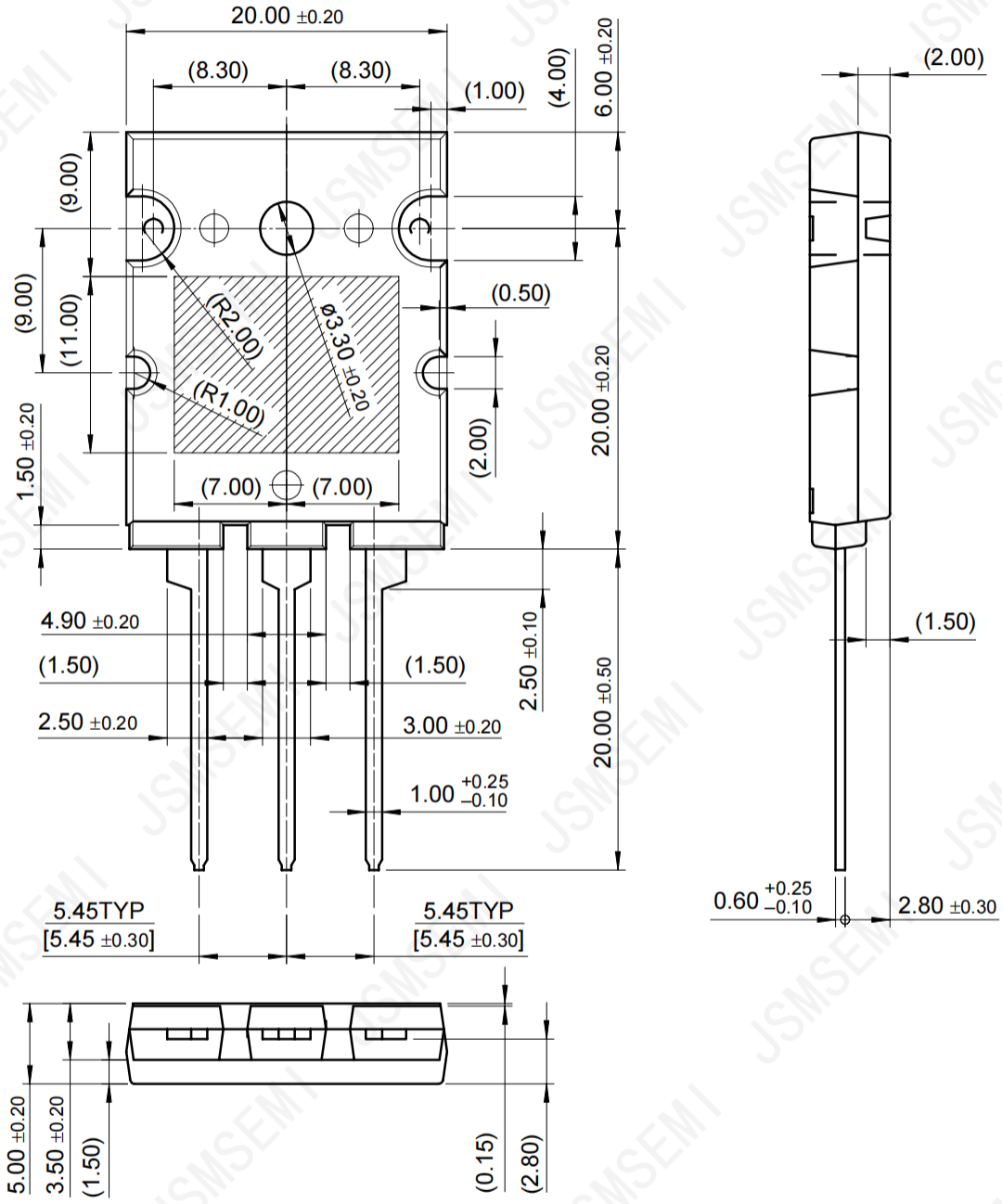


Figure C： Unclamped Inductive Switching Test Circuit and Waveform



Package Information

TO-264(TO-3PL)



Revision History

Rev.	Change	Date
V1.0	Initial version	3/27/2019

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