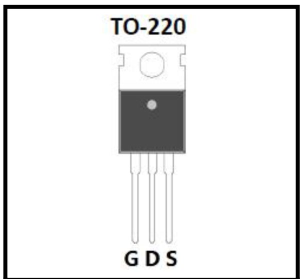
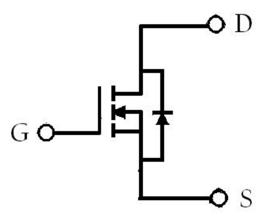
100V N-Channel Split Gate MOSFET

FEATURES

- Super Low Gate Charge
- 100% EAS Guaranteed
- RoHS compliant
- Green Device Available
- Excellent CdV/dt effect decline
- Advanced high cell density Trench technology





APPLICATIONS

- DC/DC Converter
- Ideal for high-frequency switching and synchronous rectification

RoHS

Device Marking and Package Information

Device	Package	Marking
CSP10N8P3	TO-220	CSP10N8P3

Absolute Maximum Ratings at T_j= 25ºC unless otherwise noted

Parameter	Symbol	Value	Unit
Drain-Source Voltage (V_{GS} = 0V)	V_{DSS}	100	V
Continuous Drain Current T_C = 25ºC (note1)	I_D	80	A
Continuous Drain Current T_C = 100ºC (note1)		55	A
Pulsed Drain Current (note2)	I_{DM}	280	A
Gate Source Voltage	V_{GSS}	±20	V
Single Pulse Avalanche Energy (note3)	E_{AS}	100	mJ
Power Dissipation T_C = 25ºC (note4)	P_D	108	W
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55~+175	ºC

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{θJC}$	0.4	ºC/W
Thermal Resistance, Junction-to-Ambient (note1)	$R_{θJA}$	62.5	

Electrical Characteristics T_j= 25ºC unless otherwise specified						
Parameter	**Symbol**	**Test Conditions**	**Value**			**Unit**
			Min.	**Typ.**	**Max.**	
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	100	--	--	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 80V, V_{GS} = 0V, T_J = 25ºC	--	--	1	uA
		V_{DS} = 80V, V_{GS} = 0V, T_J = 55ºC	--	--	5	uA
Gate-Source Leakage	I_{GSS}	V_{GS} = ±20V	--	--	±100	nA
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	1.2	--	2.5	V
Drain-Source On-Resistance (note2)	$R_{DS(on)}$	V_{GS} = 10V, I_D = 20A	--	6	8.3	mΩ
		V_{GS} = 4.5V, I_D = 15A	--	8.3	10.5	mΩ
Dynamic						
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 50V, f = 1.0MHz	--	3320	--	pF
Output Capacitance	C_{oss}		--	605	--	
Reverse Transfer Capacitance	C_{rss}		--	20	--	
Total Gate Charge （4.5V）	Q_g	V_{DS} = 50V, I_D = 15A, V_{GS} = 10V	--	45	--	nC
Gate-Source Charge	Q_{gs}		--	9.5	--	
Gate-Drain Charge	Q_{gd}		--	4.8	--	
Turn-on Delay Time	$t_{d(on)}$	V_{DS} = 50V, I_D = 15A V_{GS} = 10V,R_G = 3Ω	--	10	--	ns
Turn-on Rise Time	t_r		--	6.5	--	
Turn-off Delay Time	$t_{d(off)}$		--	45	--	
Turn-off Fall Time	t_f		--	7.5	--	
Body Diode Characteristics						
Source-Drain Current(Body Diode)	I_{SD}		--	--	60	A
Pulsed Source-Drain Current(Body Diode)	I_{SDM}		--	--	190	
Body Diode Voltage	V_{SD}	T_J = 25ºC, I_{SD} = 22A, V_{GS} = 0V	--	--	1.2	V
Reverse Recovery Time	t_{rr}	T_J = 25ºC , I_F = 30A di_F/dt = 100A/μs	--	33	--	ns
Reverse Recovery Charge	Q_{rr}		--	54	--	nC

Notes

1. The data tested by surface mounted on a 1 inch2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width≦300us , duty cycle≦2%
3. The EAS data shows Max. rating . The test condition is VDD =25V,VGS =10V,L=0.1mH
4. The power dissipation is limited by 175℃ junction temperature
5. The data is theoretically the same as ID and IDM , in real applications , should be limited by total power dissipation.

Typical Characteristics T_J = 25ºC, unless otherwise noted

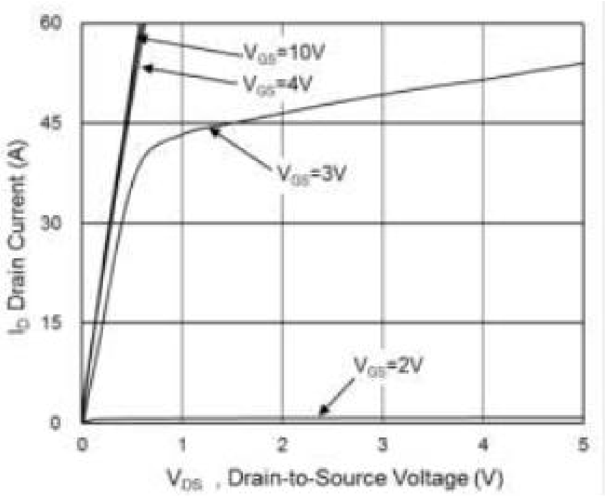


Fig.1 Typical Output Characteristics

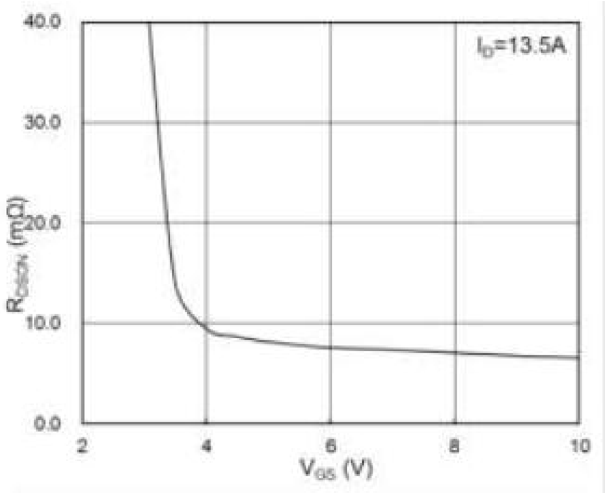


Fig.2 On-Resistance vs. G-S Voltage

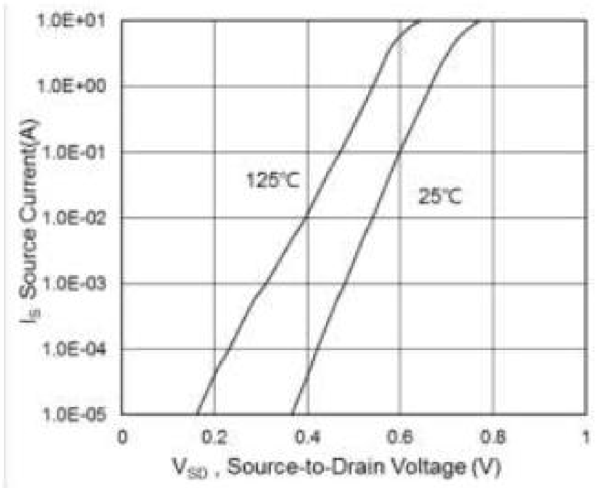


Fig.3 Forward Characteristics of Reverse Diode

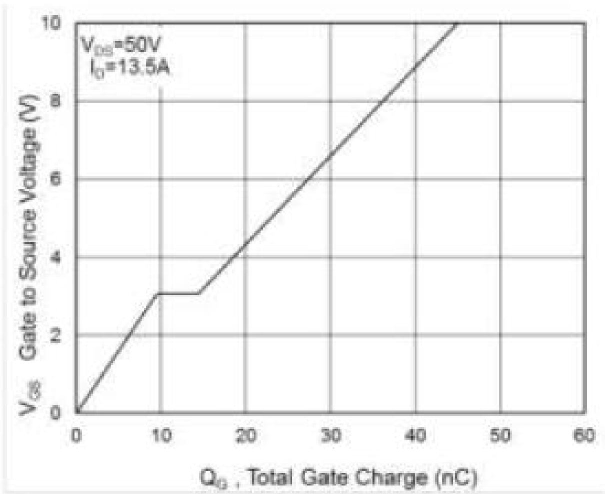


Fig.4 Gate-Charge Characteristics

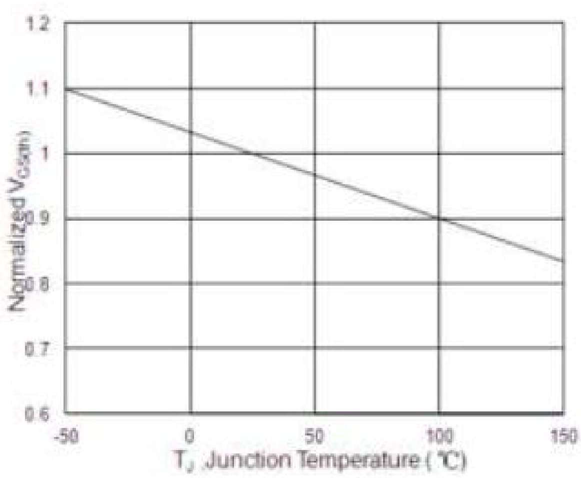


Fig.5 Normalized $V_{GS(th)}$ vs. T_J

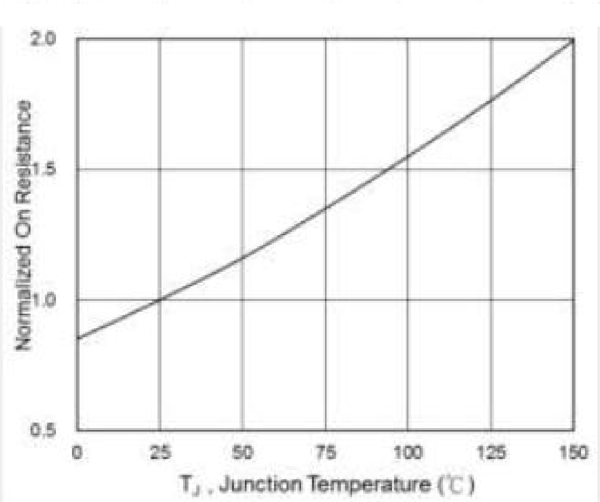


Fig.6 Normalized R_{DSON} vs. T_J

Typical Characteristics T_J = 25ºC, unless otherwise noted

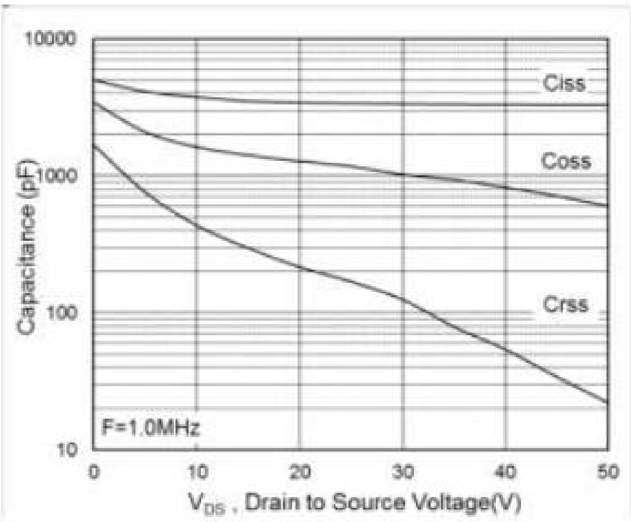


Fig.7 Capacitance

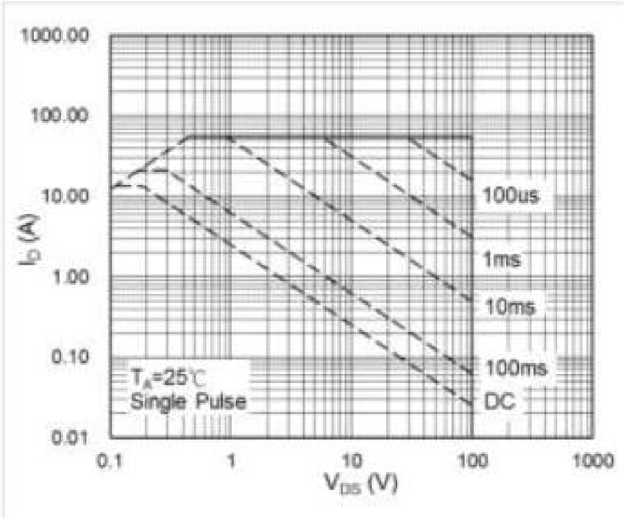


Fig.8 Safe Operating Area

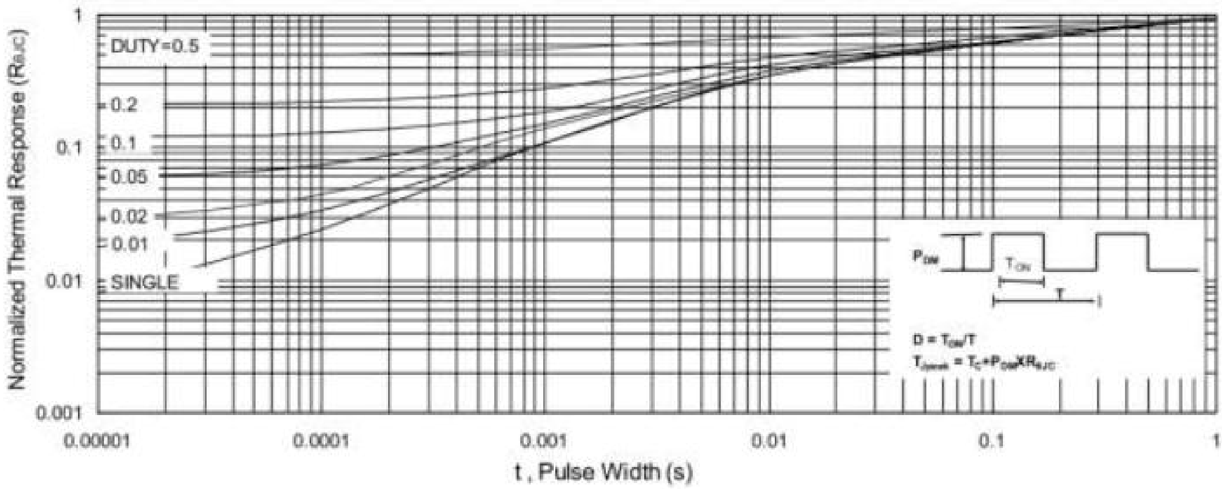


Fig.9 Normalized Maximum Transient Thermal Impedance

Figure A: Gate Charge Test Circuit and Waveform

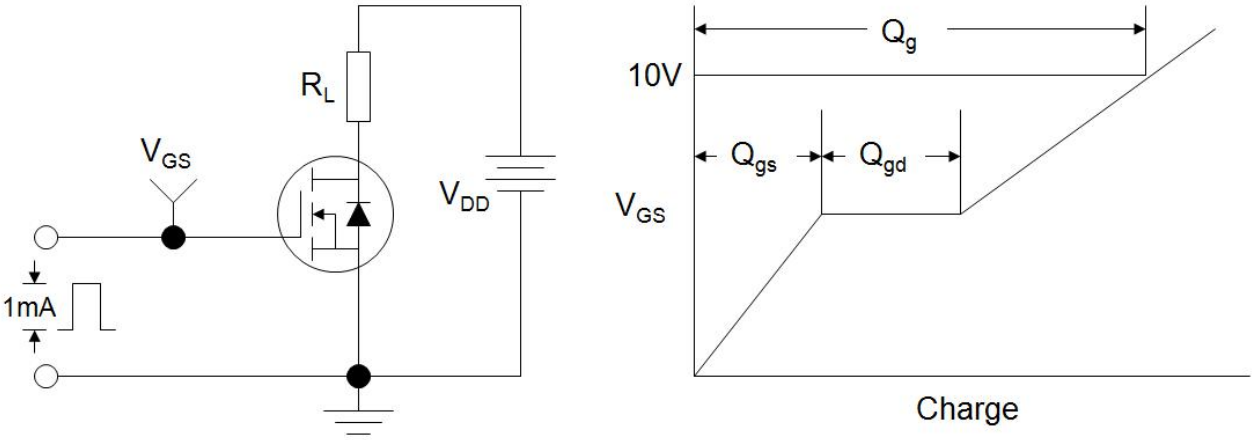


Figure B: Resistive Switching Test Circuit and Waveform

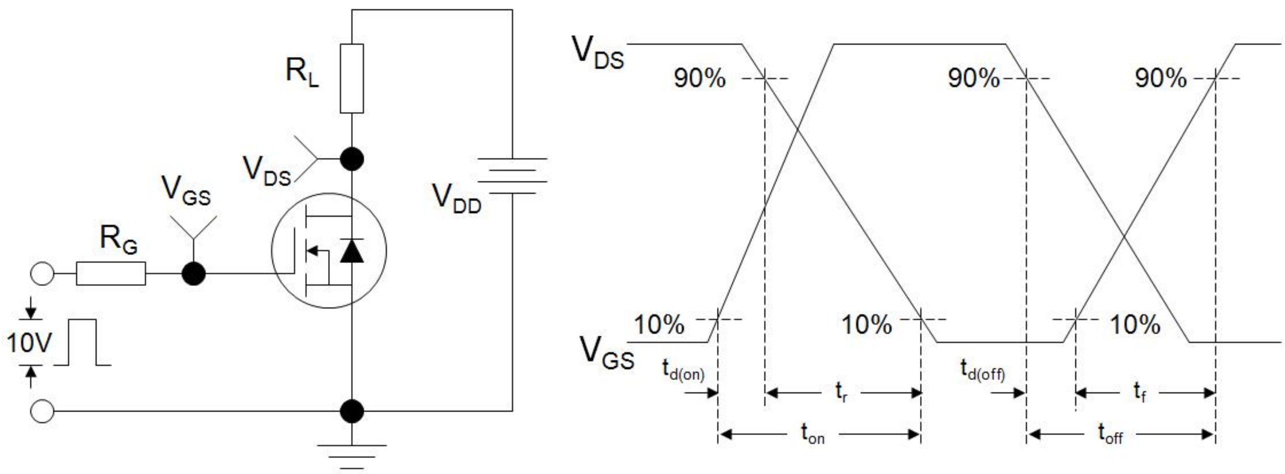
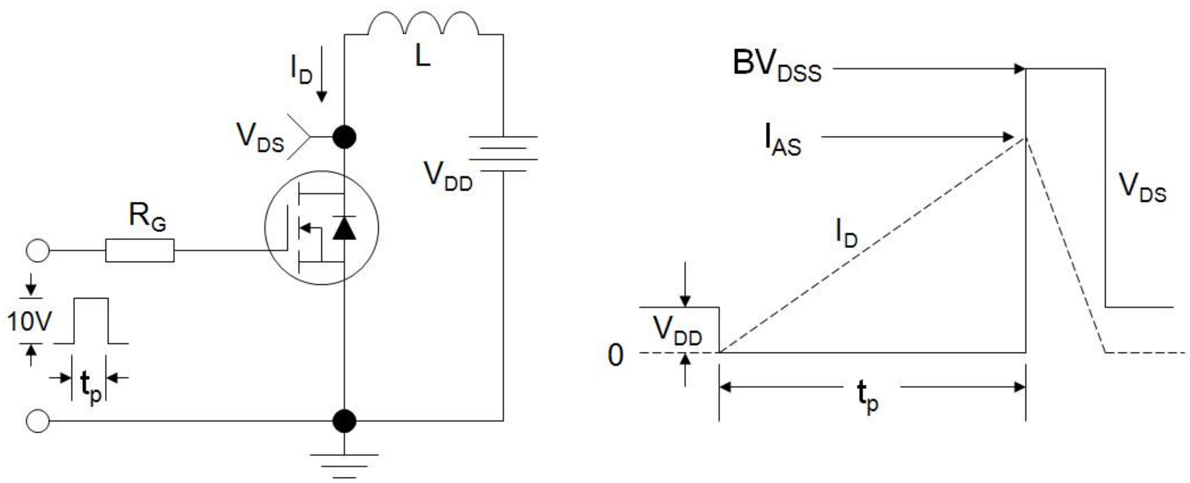
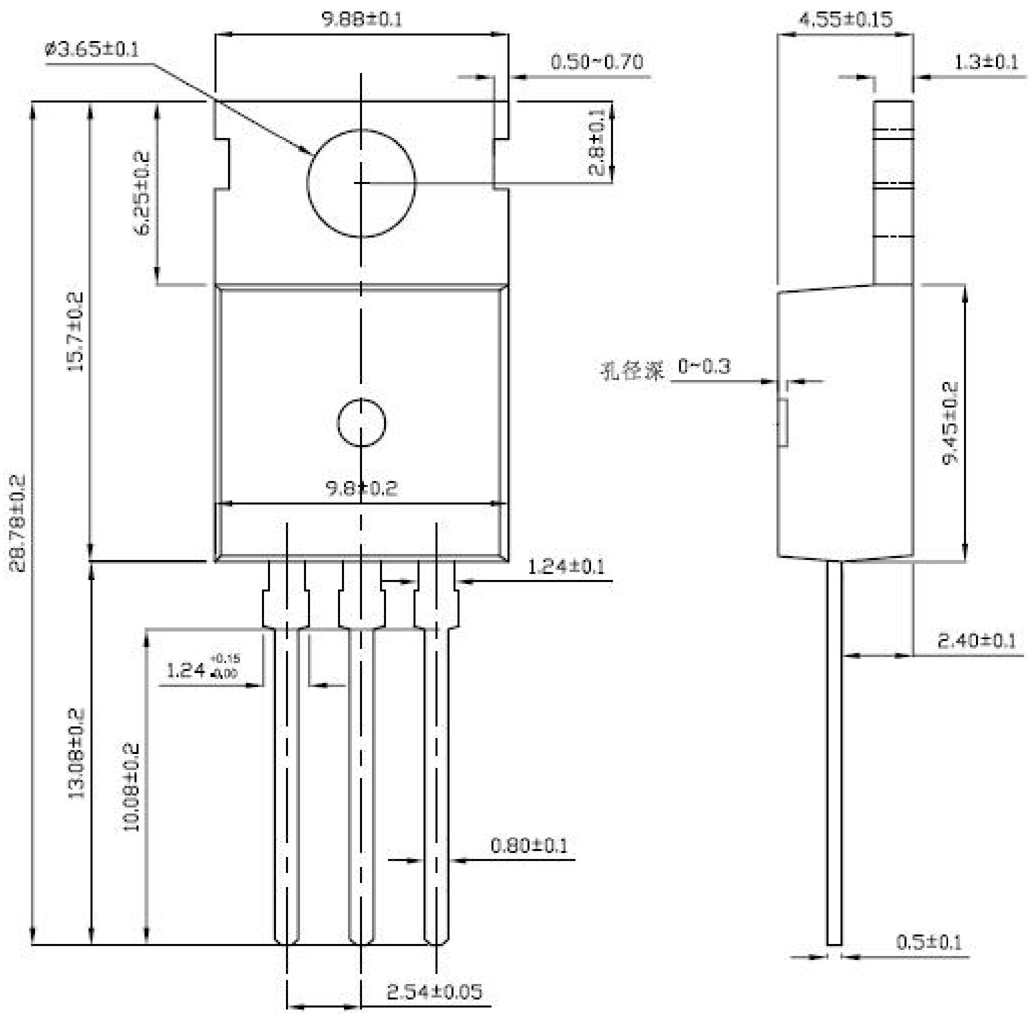


Figure C: Unclamped Inductive Switching Test Circuit and Waveform



TO-220


9.88±0.1
ø3.65±0.1
0.50~0.70
2.8±0.1
6.25±0.2
15.7±0.2
28.78±0.2
9.8±0.2
1.24±0.1
1.24 +0.15 -0.00
13.08±0.2
10.08±0.2
0.80±0.1
2.54±0.05
4.55±0.15
1.3±0.1
孔径深 0~0.3
9.45±0.2
2.40±0.1
0.5±0.1

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