FEATURES

- ✧ $R_{DS(on)}$= 13mΩ @ V_{GS}= -10V,I_D= -12A
- ✧ $R_{DS(on)}$= 20mΩ @ V_{GS}= -4.5V,I_D= -12A
- ✧ High performance trench technology for extremely low $R_{DS(on)}$
- ✧ High power and current handing capability
- ✧ ROHS Compliant

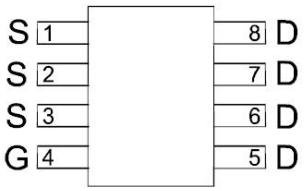
APPLICATIONS

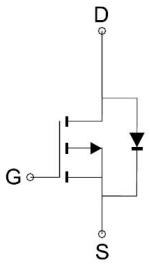
- ✧ Power Management in Note book
- ✧ Portable Equipment
- ✧ Battery Powered System
- ✧ DC/DC Converter
- ✧ Load Switch
- ✧ DSC
- ✧ LCD Display inverter

PIN CONFIGURATION

(SOP-8)

Top View





P-Channel MOSFET

Absolute Maximum Ratings (TA = 25 unless otherwise noted)

Symbol	Parameter		Ratings	Units
V_{DS}	Drain to Source Voltage		-30	V
V_{GS}	Gate to Source Voltage		±20	V
I_D	Drain Current -Continuous	(Note1a)	-12	A
	-Pulsed		-75	A
P_D	Power Dissipation for Single Operation	(Note1a)	2.5	W
		(Note1b)	1.2	
		(Note1c)	1.0	
T_J, T_{STG}	Operating and Storage Temperature		-55 to 150	°C

Thermal Characteristics

$R_{\theta JA}$	Thermal Resistance , Junction to Ambient (Note 1a)	50	°C/W
$R_{\theta JC}$	Thermal Resistance , Junction to Case (Note 1)	25	°C/W

Ordering Information

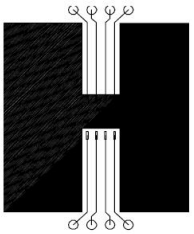
Device	Package	Units per Reel
JY9425X	SOP-8	3000PCS

Electrical Characteristics T_J = 25°C unless otherwise noted

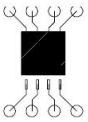
Symbol	Parameter	Test Conditions	Min	Typ	Max	Units
Off Characteristics						
B_{VDSS}	Drain to Source Breakdown Voltage	I_D = -250μA, V_{GS} = 0V	-30			V
$\frac{\Delta B_{VDSS}}{\Delta T_J}$	Breakdown Voltage Temperature Coefficient	I_D = -250μA, referenced to 25°C		-20		mV/°C
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS} = -24V, V_{GS} = 0V			-1	μA
I_{GSS}	Gate to Source Leakage Current	V_{GS} = ±25V, V_{DS} = 0V			±100	nA
On Characteristics (Note 2)						
$V_{GS(th)}$	Gate to Source Threshold Voltage	V_{GS} = V_{DS}, I_D = -250μA	-1	-1.9	-3	V
$\frac{\Delta V_{GS(th)}}{\Delta T_J}$	Gate to Source Threshold Voltage Temperature Coefficient	I_D = -250μA, referenced to 25°C		8.1		mV/°C
$r_{DS(on)}$	Drain to Source On Resistance	V_{GS} = -10V , I_D = -12A		13	15	mΩ
		V_{GS} = -4.5V, I_D = -12A		20	22	
		V_{GS} = -10V, I_D = -12A T_J = 125°C		17	22	
g_{FS}	Forward Transconductance	V_{DS} = -5V, I_D = -12A		60		S
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz		1200		pF
C_{oss}	Output Capacitance			400		pF
C_{rss}	Reverse Transfer Capacitance			160	190	pF
Switching Characteristics (Note 2)						
$t_{d(on)}$	Turn-On Delay Time	V_{DD} = -15V, I_D = -1A V_{GS} = -10V, R_{GS} = 6Ω		7		ns
t_r	Rise Time			9	12	ns
$t_{d(off)}$	Turn-Off Delay Time			25.6	28	ns
t_f	Fall Time			12	16	ns
Q_g	Total Gate Charge	V_{DS} = -15V, V_{GS} = -10V, I_D = -12A		88	124	nC
Q_g	Total Gate Charge	V_{DS} = -15V, V_{GS} = -5V, I_D = -12A		46	65	nC
Q_{gs}	Gate to Source Gate Charge			8		nC
Q_{gd}	Gate to Drain Charge			23.5		nC
Drain-Source Diode Characteristics						
V_{SD}	Source to Drain Diode Forward Voltage	V_{GS} = 0V, I_S = -2.1A		-0.7	-1.2	V
t_{rr}	Reverse Recovery Time	I_F = 12A, di/dt = 100A/μs			45	ns
Q_{rr}	Reverse Recovery Charge	I_F = 12A, di/dt = 100A/μs			34	nC

Notes:

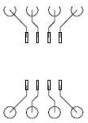
1: $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistance where the case thermal reference is defined as the solder mounting surface of the drain pins. $R_{\theta JC}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design.



a) 50 °C/W (10 sec) when mounted on a 1 in^2 pad of 2 oz copper



b) 105 °C/W when mounted on a .04 in^2 pad of 2 oz copper



c) 125 °C/W when mounted on a minimun pad

Scale 1 : 1 on letter size paper

2: Pulse Test: Pulse Width < 300μs, Duty Cycle < 2.0%.

Typical Characteristics T_J = 25°C unless otherwise noted

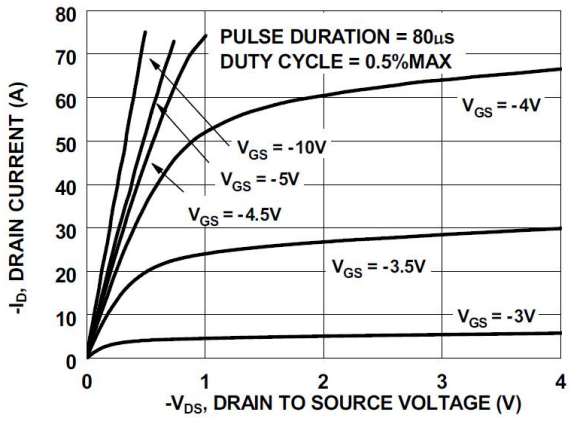


Figure 1. On Region Characteristics

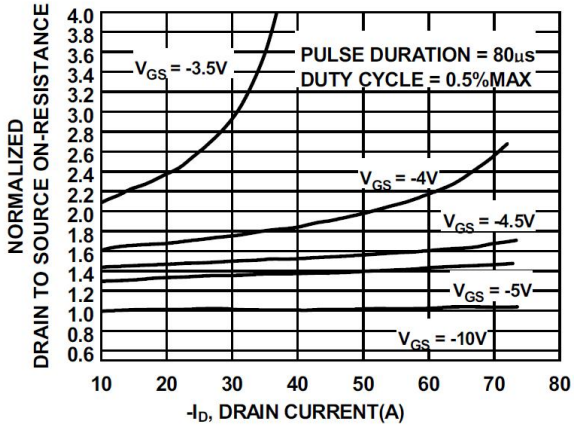


Figure 2. Normalized On-Resistance vs Drain Current and Gate Voltage

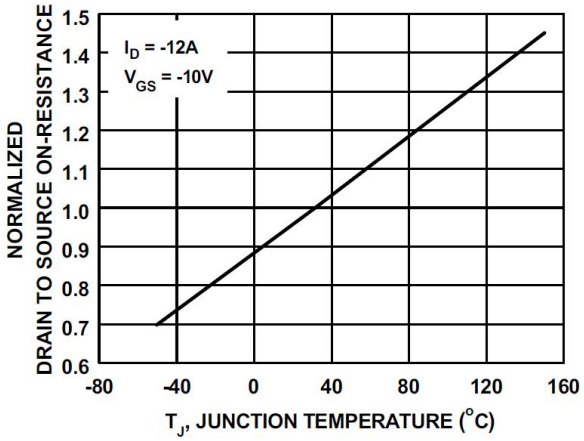


Figure 3. Normalized On Resistance vs Junction Temperature

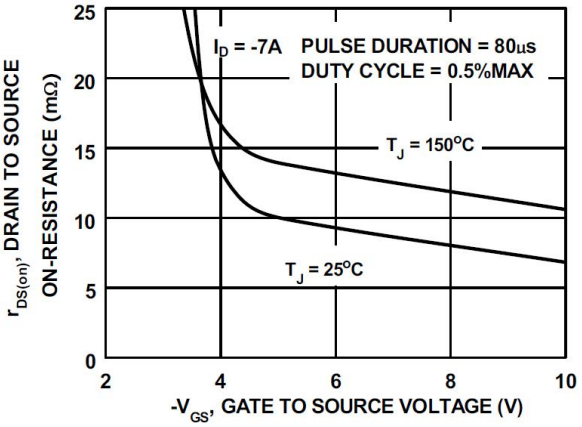


Figure 4. On-Resistance vs Gate to Source Voltage

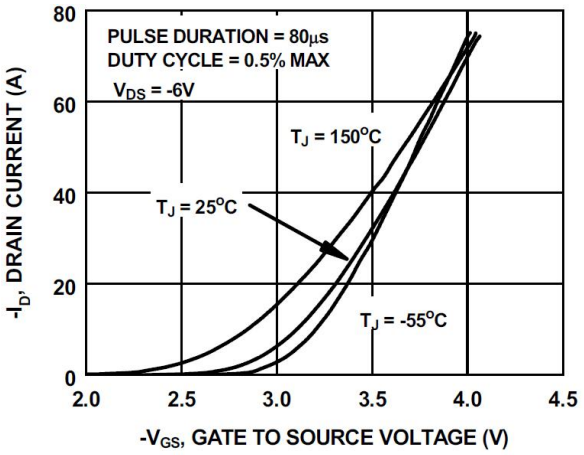


Figure 5. Transfer Characteristics

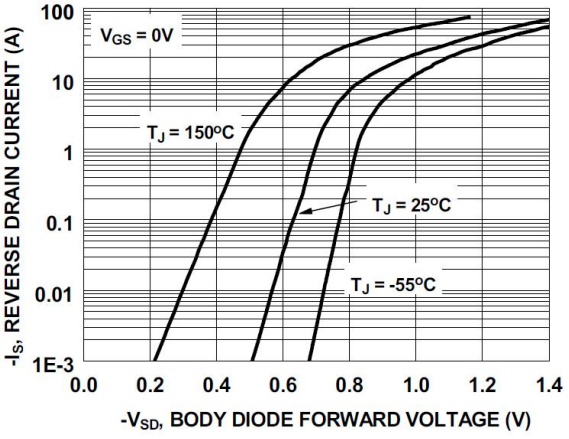


Figure 6. Source to Drain Diode Forward Voltage vs Source Current

Typical Characteristics T_J = 25°C unless otherwise noted

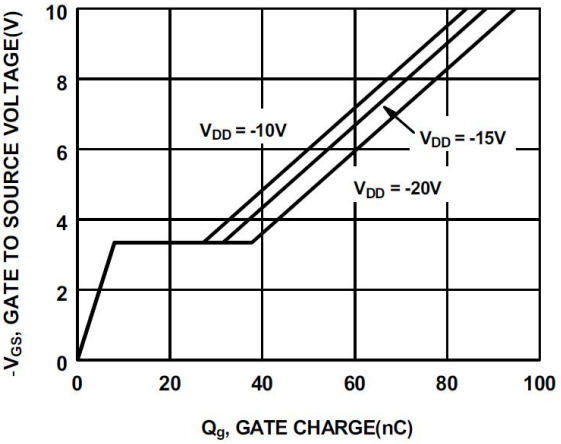


Figure 7. Gate Charge Characteristics

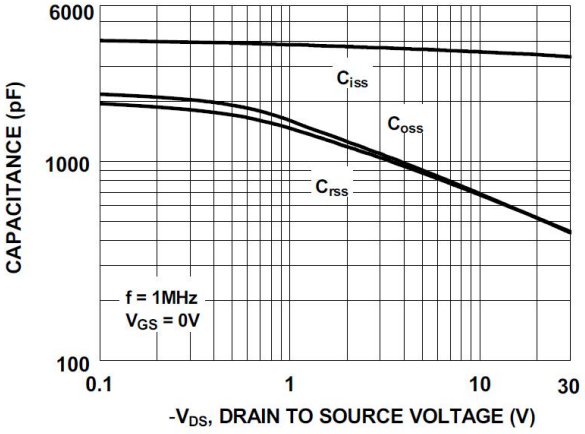


Figure 8. Capacitance vs Drain to Source Voltage

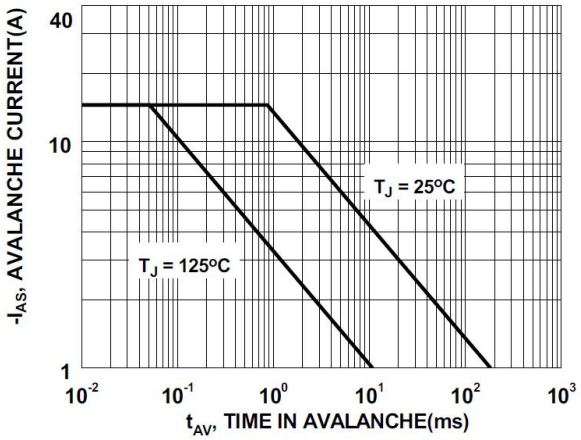


Figure 9. Unclamped Inductive Switching Capability

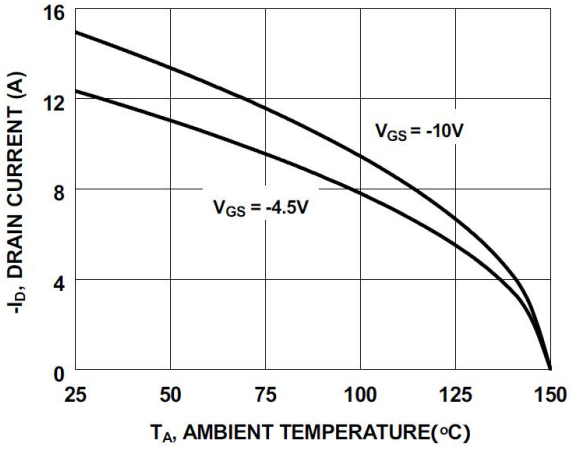


Figure 10. Maximum Continuous Drain Current vs Ambient Temperature

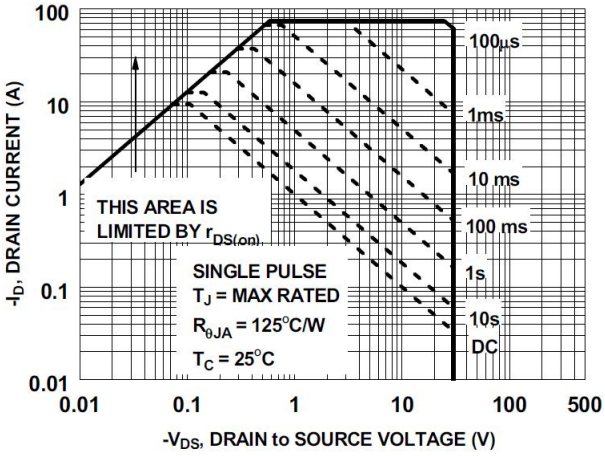


Figure 11. Forward Bias Safe Operating Area

Typical Characteristics T_J = 25 °C unless otherwise noted

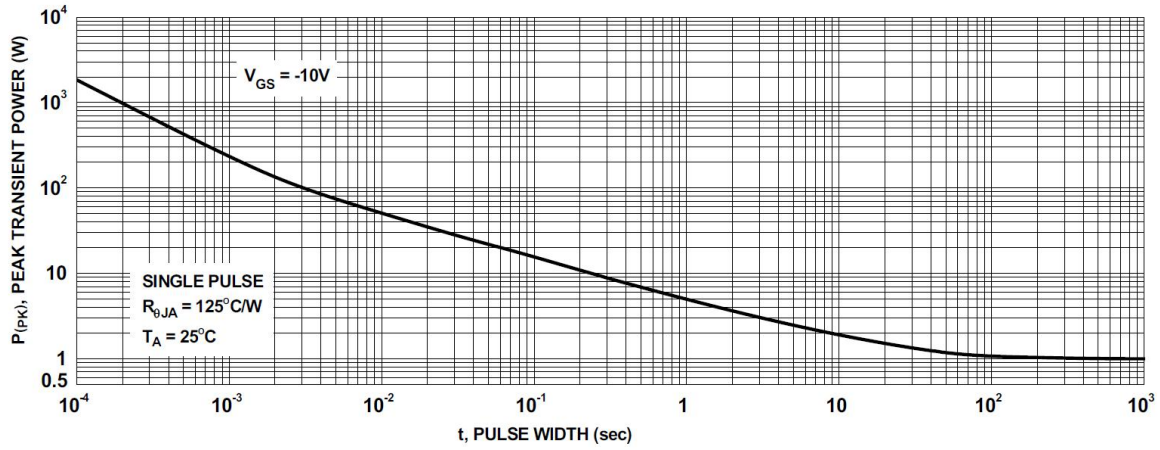


Figure 13. Single Pulse Maximum Power Dissipation

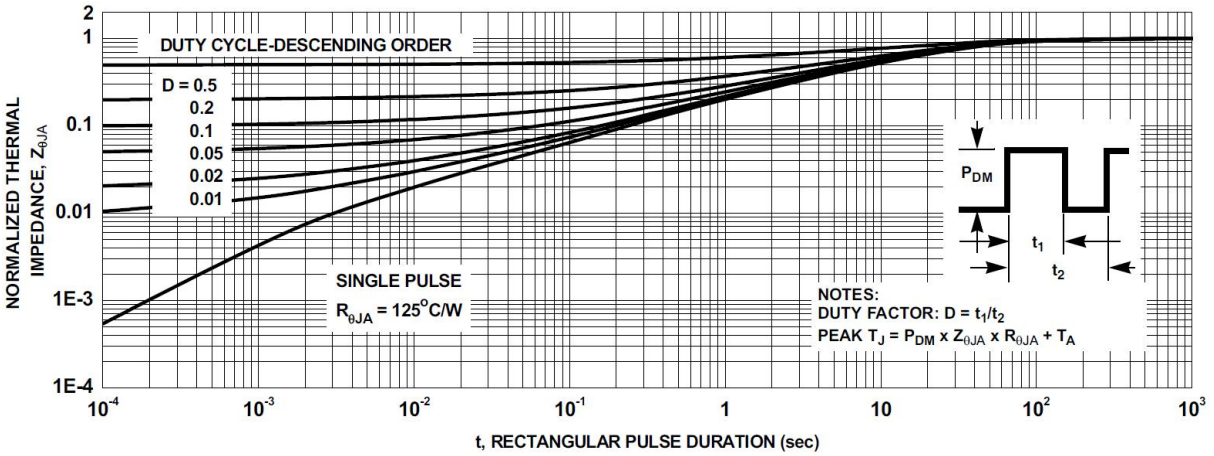
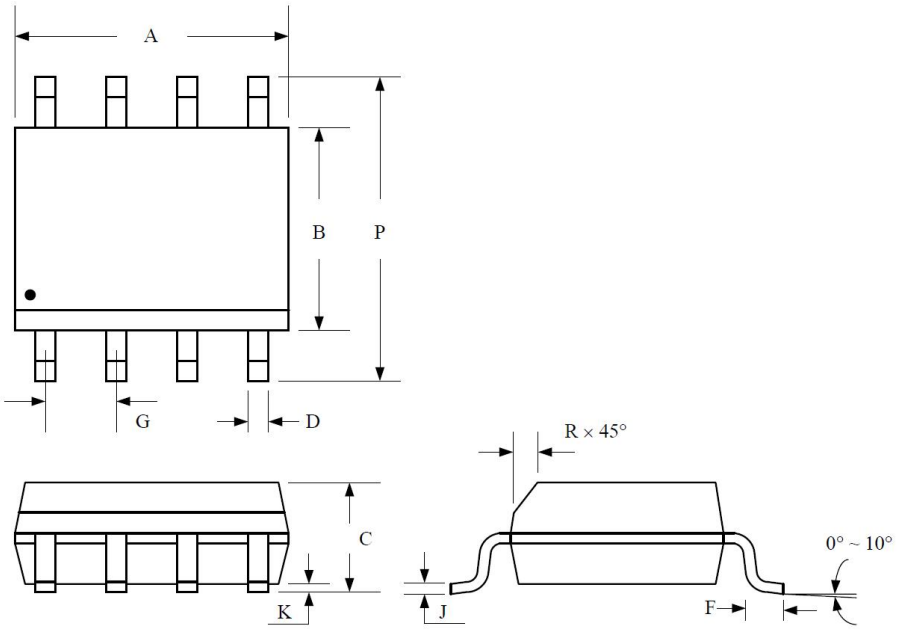


Figure 14. Junction-to-Ambient Transient Thermal Response Curve

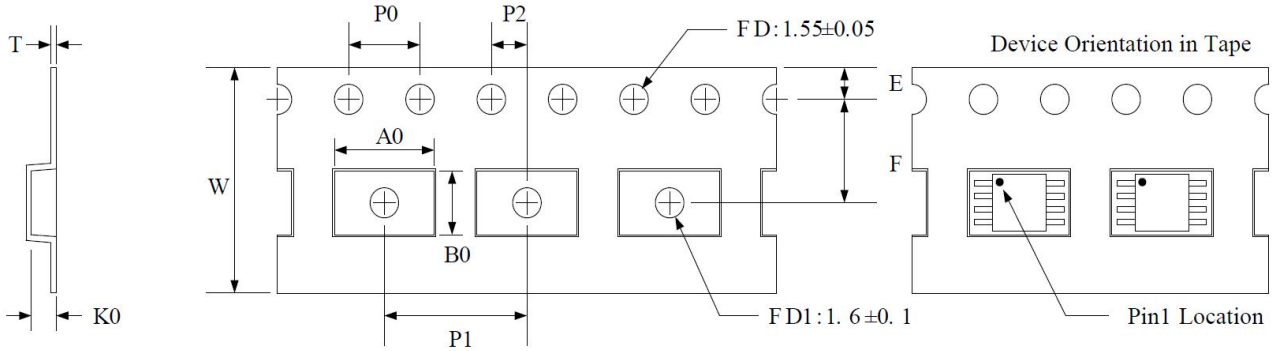
SOP-8 package



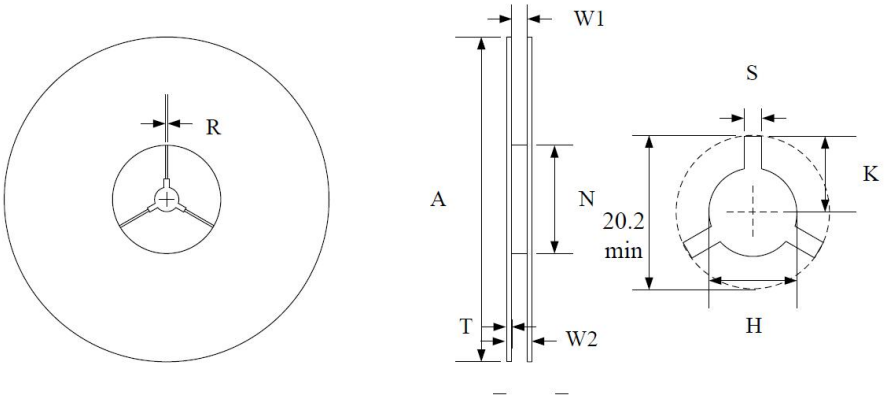
Package Dimensions (Controlling dimensions are in millimeters)

Symbol	Dimensions (mm)		Dimensions (Inches)	
	Minimum	Maximum	Minimum	Maximum
A	4.800	5.000	0.189	0.196
B	3.800	4.000	0.150	0.157
C	1.350	1.750	0.054	0.068
D	0.350	0.490	0.014	0.019
F	0.400	1.250	0.016	0.049
G	1.27 BSC		0.05 BSC	
J	0.180	0.250	0.007	0.009
K	0.100	0.250	0.004	0.008
P	5.800	6.200	0.229	0.244
R	0.250	0.500	0.010	0.019

Tape and Reel Specification

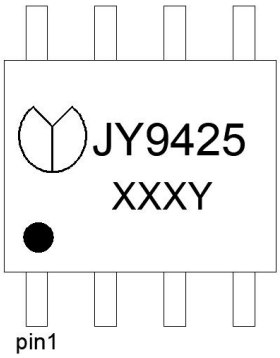


Symbol	W	A0	B0	K0	E	F	P1	P0	P2	T
Dimensions (mm)	12.00±0.3	6.40±0.1	5.2±0.1	2.10±0.1	1.75±0.1	5.50±0.1	8.00±0.1	4.0±0.1	2.0±0.1	0.3±0.05

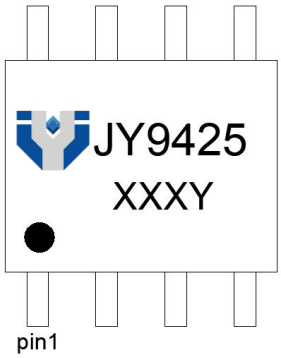


Symbol	Reel Size	A	N	W2	W1	H	T	S	K	R
Dimensions (mm)	Φ330	330.0±2.0	100.0±2.0	18.4 max	12.4+2.0 -0.0	13.0+0.5 -0.2	2.0±0.2	1.5 min	10.1 min	2.5 min

Marking Information



OR



(1)JY9425X:Partnumber,fixed
(2) XXX: Wafer's Lot NoY:
Internal code

(1) JY9425X: Part number,
fixed(2) XXX: Wafer's Lot No
Y: Internal code