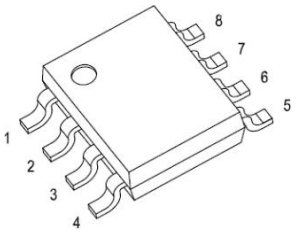
CHONGQING CLOUDCHILD TECHNOLOGY CO., LTD

SOP8 Plastic-Encapsulate MOSFETS

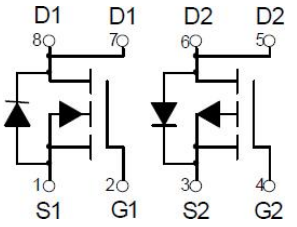
CCM4606Q N- and P-Channel Power MOSFET

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
-30V	29mΩ@-10V	-5.3A
	41mΩ@-4.5V	
30V	23mΩ@10V	6.3A
	30mΩ@4.5V	

SOP8



Schematic diagram



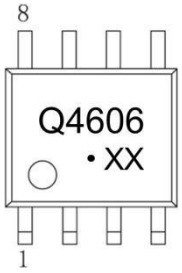
Feature

- Low drain-source ON-resistance
- High forward transfer admittance
- Low leakage current
- AEC-Q101 Qualified

Application

- Low voltage applications

MARKING



Q4606 = Device Code

XX = Date Code

Solid dot = Green Device

ABSOLUTE MAXIMUM RATINGS (T_a=25℃ unless otherwise noted)

Parameter	Symbol	Value	Unit
P-MOSFET			
Drain-Source Voltage	V_{DS}	-30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current(1)	I_D	-5.3	A
Pulsed Drain Current	I_{DM}	-16	A
Power Dissipation	P_D	1.68	W
N-MOSFET			
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current	I_D	6.3	A
Pulsed Drain Current(1)	I_{DM}	19	A
Power Dissipation	P_D	1.68	W
Temperature and Thermal Resistance			
Thermal Resistance from Junction to Ambient(2)	$R_{\theta JA}$	89	℃/W
Junction Temperature	T_J	175	℃
Storage Temperature	T_{STG}	-55~ +175	℃

P-channel MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} = -24V,V_{GS} = 0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = -250μA	-1.0	-1.5	-2.5	V
Drain-source on-resistance(3)	$R_{DS(on)}$	V_{GS} = -10V, I_D = -6.0A		29	35	mΩ
		V_{GS} = -4.5V, I_D = -5.0A		41	58	
Forward tranconductance	g_{FS}	V_{DS} = -5V, I_D = -6.0A	5	13		S
Diode forward voltage(3)	V_{DS}	I_S= -1.0A, V_{GS} = 0V			-1.2	V
Dynamic characteristics(4)						
Input Capacitance	C_{iss}	V_{DS}= -15V,V_{GS}=0V, F=1.0MHz		850		pF
Output Capacitance	C_{oss}			101		
Reverse Transfer Capacitance	C_{rss}			65		
Total gate charge	Q_g	V_{DS}= -15V,I_D= -4A,V_{GS}= -4.5V		9.5		nC
Gate-source charge	Q_{gs}			2		
Gate-drain charge	Q_{gd}			3		
Switching Characteristics(4)						
Turn-on delay time	$t_{d(on)}$	V_{DD}= -15V,I_D= -4A V_{GS}= -10V, R_{GEN}=6Ω		7		nS
Turn-on rise time	t_r			3		
Turn-off delay time	$t_{d(off)}$			20		
Turn-off fall time	t_f			12		

N-channel MOSFET ELECTRICAL CHARACTERISTICS(T_a=25℃ unless otherwise noted)

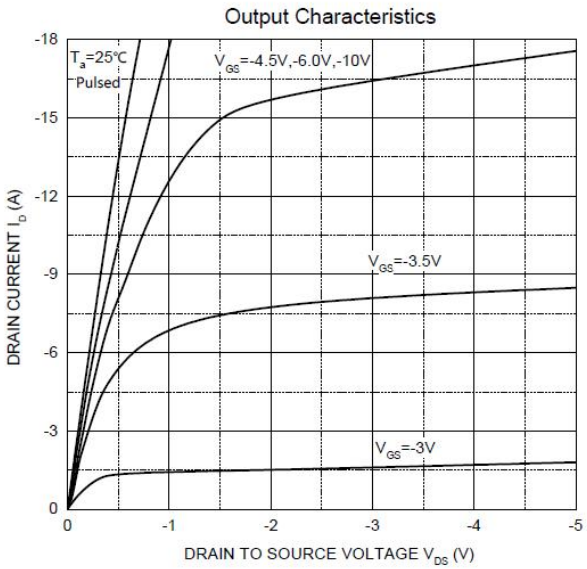
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =250μA	30			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =24V,V_{GS} = 0V			1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} = 0V			±100	nA
Gate threshold voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D =250μA	1.0	1.5	2.5	V
Drain-source on-resistance(3)	$R_{DS(on)}$	V_{GS} =10V, I_D =6.9A		23	28	mΩ
		V_{GS} =4.5V, I_D =5.0A		30	42	
Forward tranconductance	g_{FS}	V_{DS} =5V, I_D =6.5A	10	43		S
Diode Forward voltage(3)	V_{DS}	I_S=1.0A, V_{GS} = 0V			1.2	V
Dynamic characteristics(4)						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V, F=1.0MHz		633		pF
Output Capacitance	C_{oss}			65		
Reverse Transfer Capacitance	C_{rss}			55		
Total gate charge	Q_g	V_{DS}=15V,I_D=5.8A,V_{GS}=4.5V		9.5		nC
Gate-source charge	Q_{gs}			1.5		
Gate-drain charge	Q_{gd}			3		
Switching Characteristics(4)						
Turn-on delay time	$t_{d(on)}$	V_{DD}=15V, R_L=2.7Ω V_{GS}=10V,R_{GEN}=3Ω		3.3		ns
Turn-on rise time	t_r			4.8		
Turn-off delay time	$t_{d(off)}$			26		
Turn-off fall time	t_f			4		

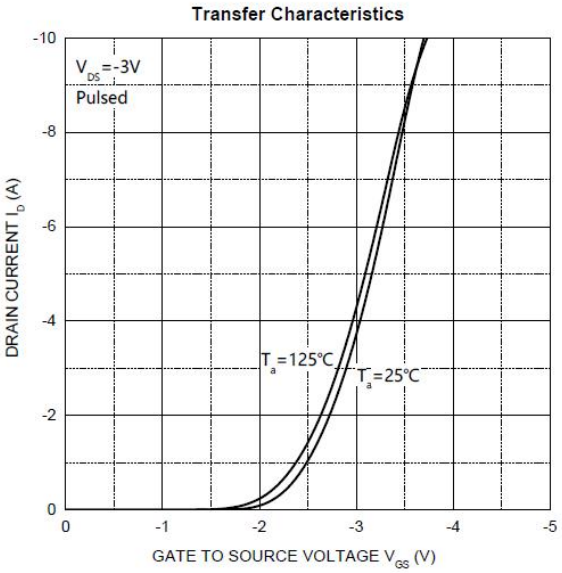
Notes:

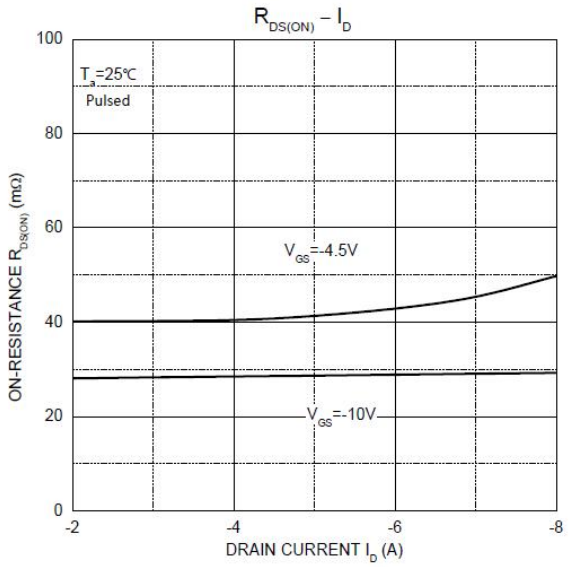
1. Repetitive Rating : Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, t < 5 sec.
3. Pulse Test : Pulse Width≤300μs, Duty Cycle ≤ 2%.
4. Guaranteed by design, not subject to production testing.

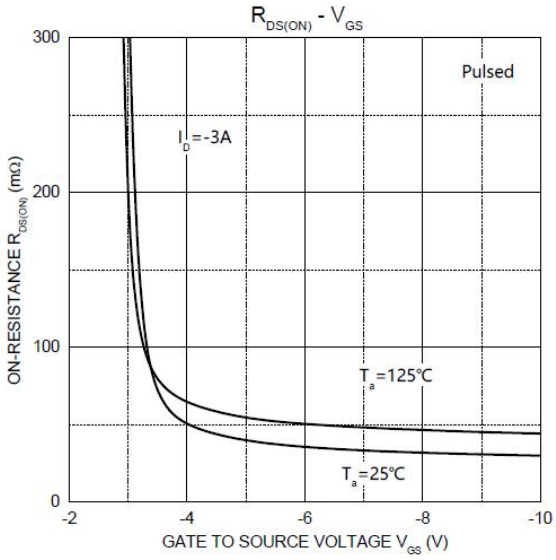
Typical Electrical and Thermal Characteristics

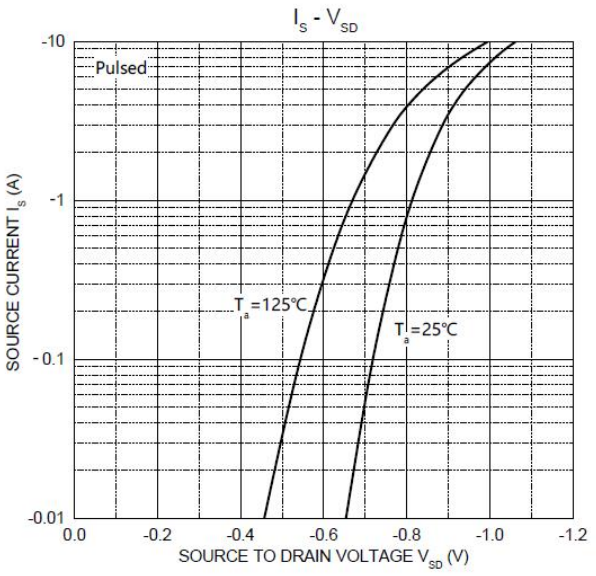
P-Channel MOS

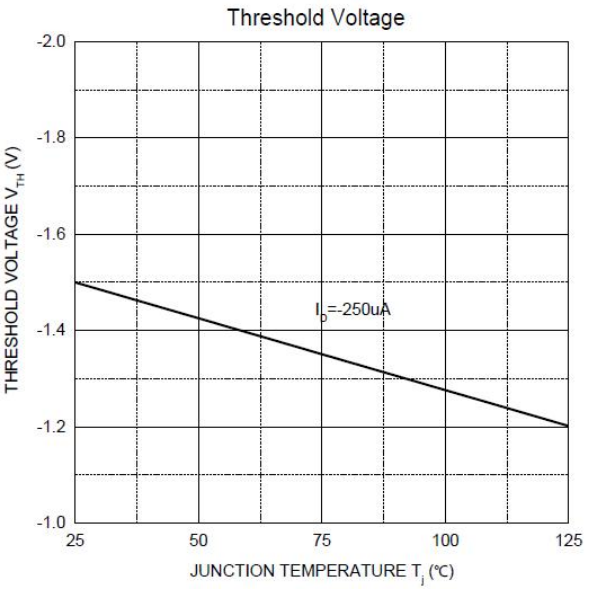




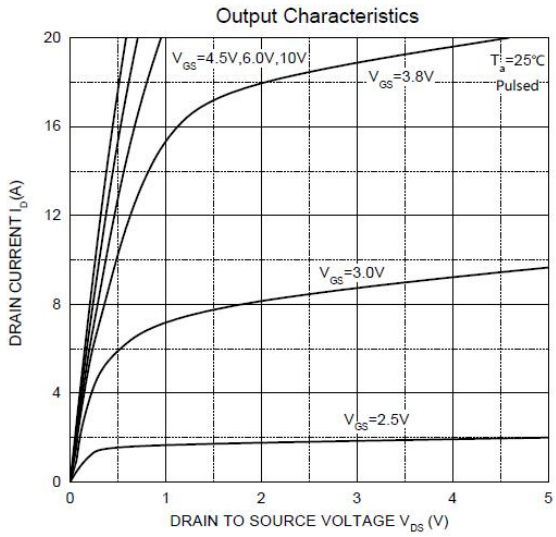


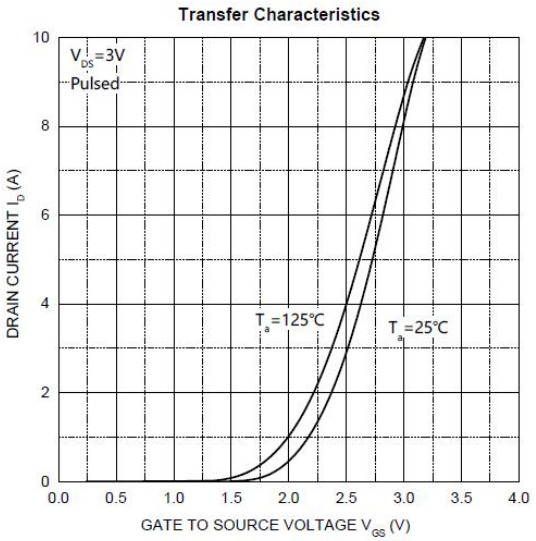


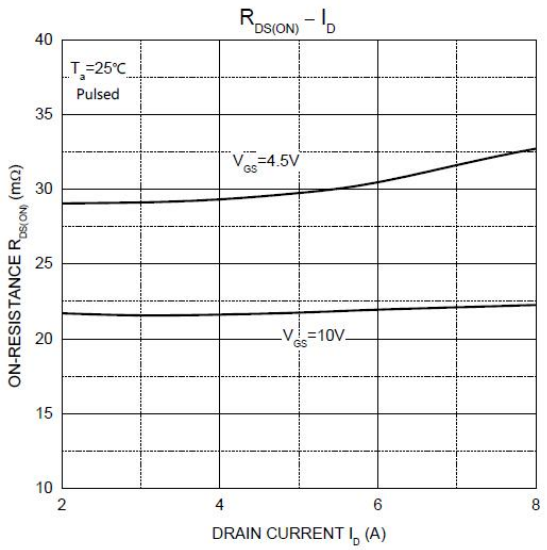


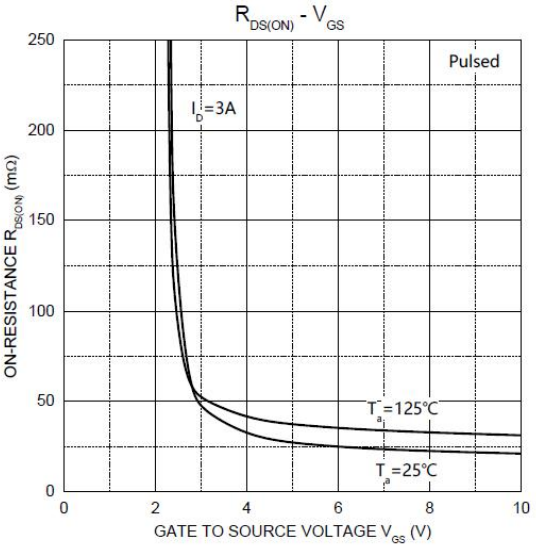


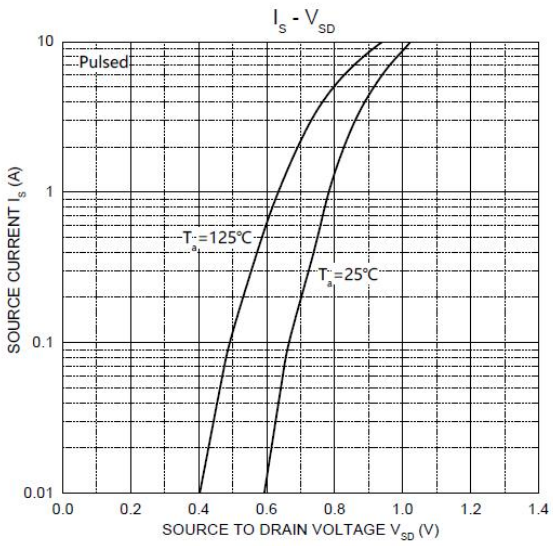
N-Channel MOS

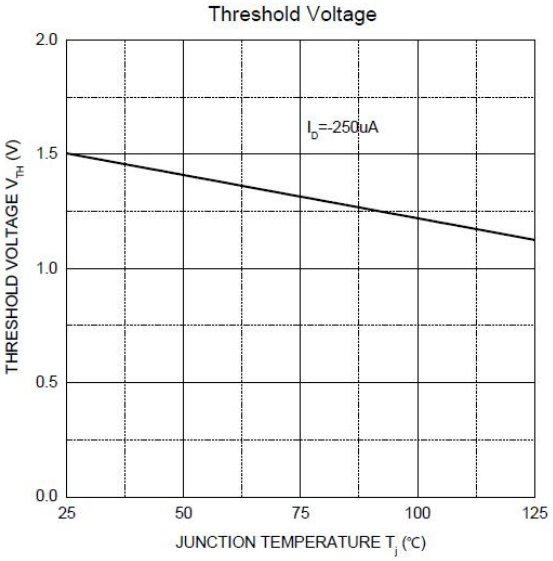




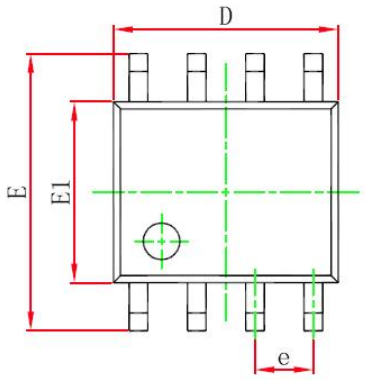


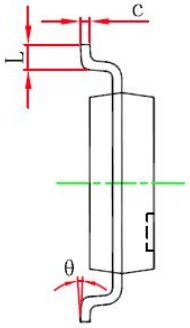


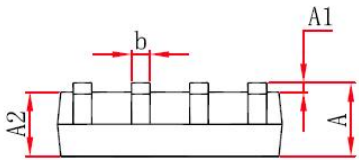




SOP8 Package Information







Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	**Max**	**Min**	**Max**
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.007	0.010
D	4.800	5.000	0.189	0.197
e	1.270 (BSC)		0.050 (BSC)	
E	5.800	6.200	0.228	0.244
E1	3.800	4.000	0.150	0.157
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°

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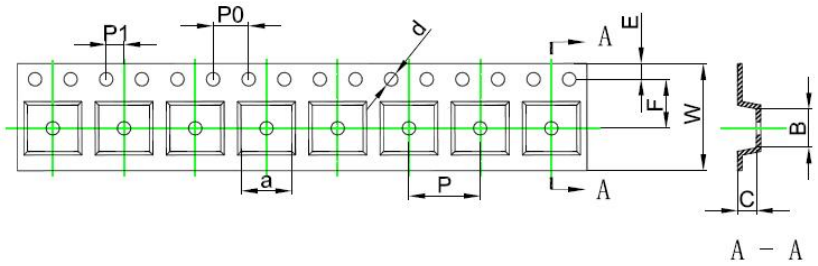
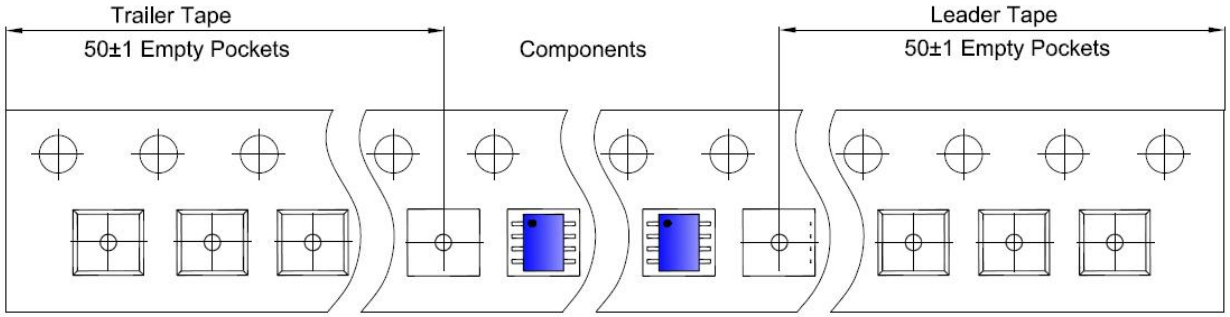
SOP8 Tape and Reel

SOP8 Embossed Carrier Tape

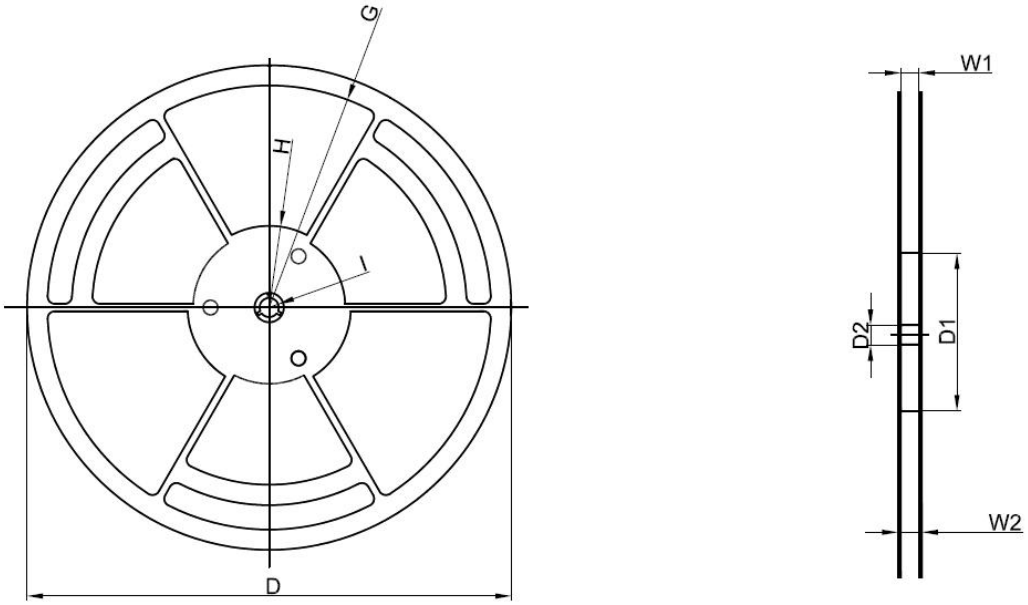


Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOP8	6.40	5.40	2.10	Ø1,50	1.75	5.50	4.00	8.00	2.00	12.00

SOP8 Tape Leader and Trailer



SOP8 Reel



Dimensions are in millimeter								
Reel Option	D	D1	D2	G	H	I	W1	W2
13"Dia	Ø330.00	100.00	13.00	R151.00	R56.00	R6.50	12.40	17.60

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
4,000 pcs	13 inch	8,000 pcs	360×360×65	64,000 pcs	565×380×390	

Date of change	Rev #	revise content
2023/03/09	A/0	/
2023/05/15	A/1	微调静态参数