



Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	8mΩ@10V	10A
	12mΩ@4.5V	

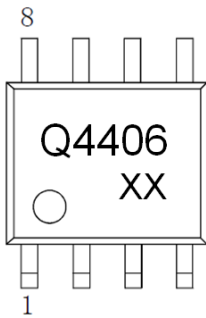
Feature

- High cell density trench N-ch MOSFETs
- Super low gate charge
- Advanced high cell density Trench technology

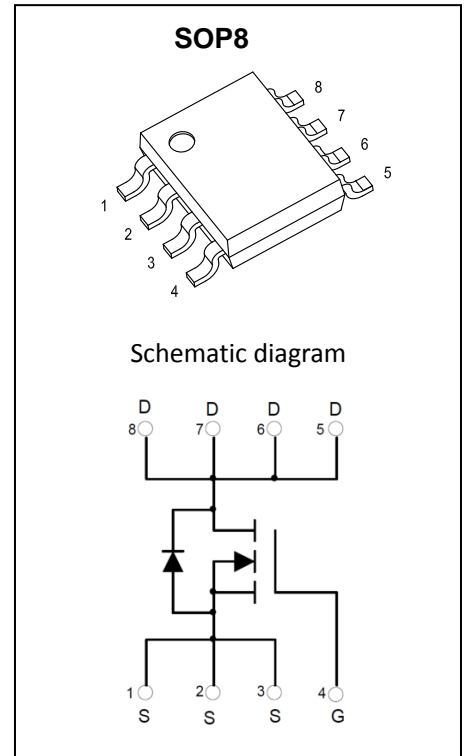
Application

- Battery protection applications
- Load switch

MARKING:



Q4406= Device code
 Solid dot=Pin1 indicator
 Solid dot = Green molding compound device,
 if none, the normal device
 YY=Date Code



ABSOLUTE MAXIMUM RATINGS ($T_C=25^{\circ}C$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	10	A
Pulsed Drain Current	I_{DM}	40	A
Single Pulse Avalanche Energy	$E_{AS}^{(1)}$	105	mJ
Power Dissipation	P_D	1.4	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	89	$^{\circ}C/W$
Junction Temperature	T_J	150	$^{\circ}C$
Storage Temperature	T_{STG}	-55~ +150	$^{\circ}C$

(1). E_{AS} condition: $V_{DD}=-50V, L=0.5mH, R_G=25\Omega$, Starting $T_J = 25^{\circ}C$

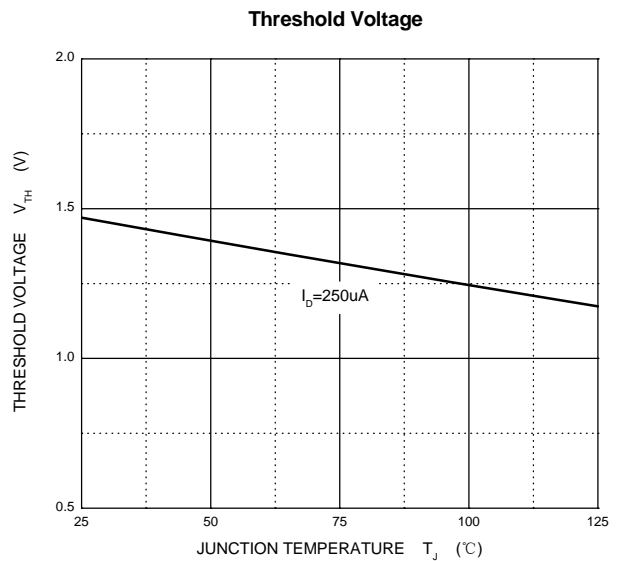
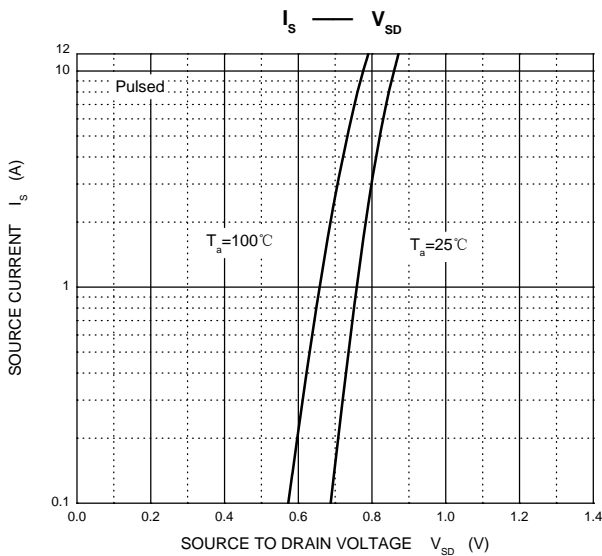
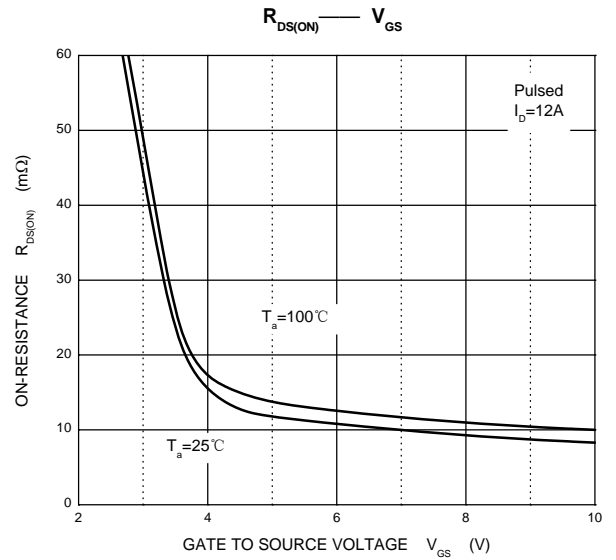
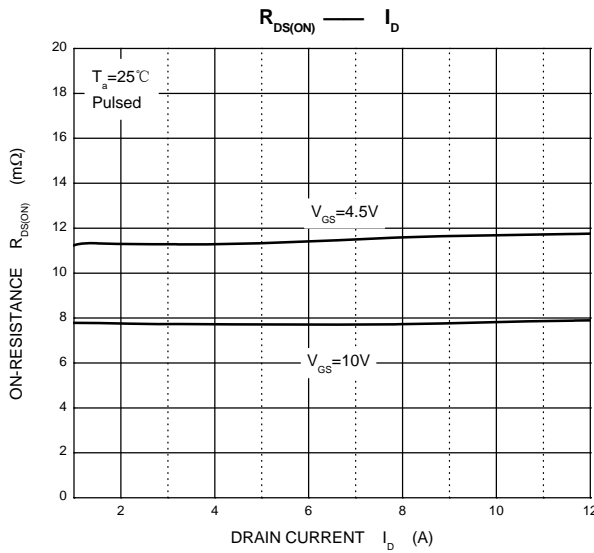
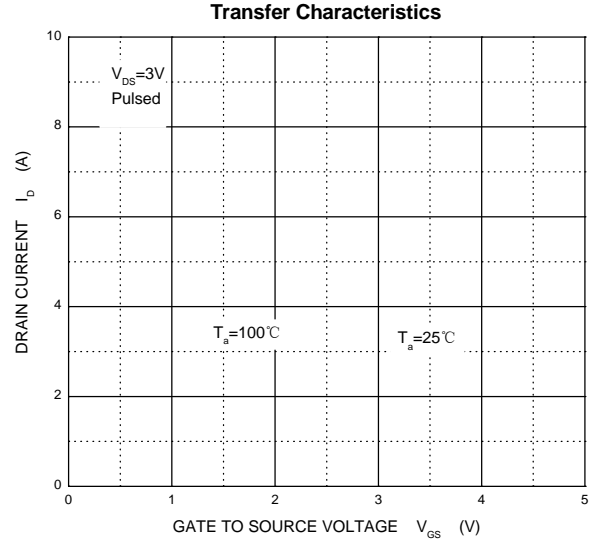
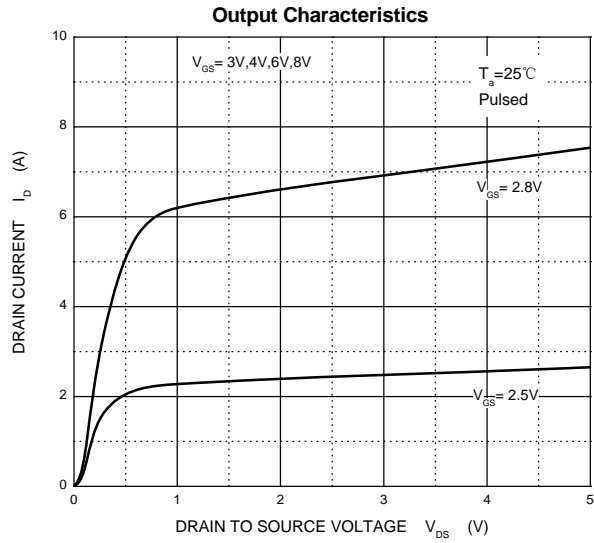
MOSFET ELECTRICAL CHARACTERISTICS (T_J=25°C unless otherwise noted)

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} =30V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} =±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage ¹	V _{GS(th)}	V _{DS} =V _{GS} , I _D =250μA	1.0	1.5	3.0	V
Drain-source on-resistance ¹	R _{DS(on)}	V _{GS} =10V, I _D =12A		8	12	mΩ
		V _{GS} =4.5V, I _D =10A		12	16	
Forward tranconductance ¹	g _{FS}	V _{DS} =5V, I _D =10A	10	14		S
Dynamic characteristics²						
Input capacitance	C _{iss}	V _{DS} =15V, V _{GS} =0V, f =1MHz		1570		pF
Output capacitance	C _{oss}			320		
Reverse transfer capacitance	C _{rss}			190		
Switching Characteristics²						
Total gate charge	Q _g	V _{DS} =15V, V _{GS} =5V, I _D =10A		13.5		nC
Gate-source charge	Q _{gs}			5.6		
Gate-drain charge	Q _{gd}			3.7		
Turn-on delay time	t _{d(on)}	V _{DD} =25V , V _{GS} =10V , R _G =63Ω, R _L =6.7Ω, I _D =1A		31		ns
Turn-on rise time	t _r			22		
Turn-off delay time	t _{d(off)}			105		
Turn-off fall time	t _f			82		
Diode Characteristics						
Continuous Source Current	I _S	V _G =V _D =0V , Force Current			10	A
Pulsed Source Current	I _{SM}				40	
Diode Forward Voltage ¹	V _{SD}	V _{GS} =0V , I _S =10A , T _J =25°C		0.8	1.2	V

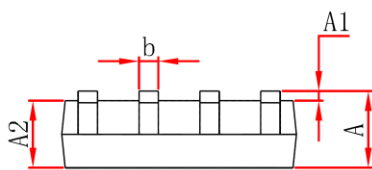
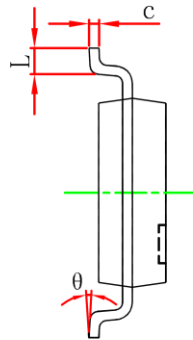
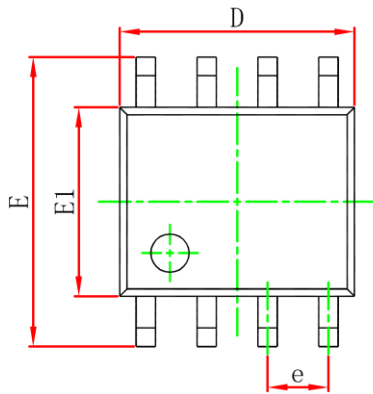
Notes:

1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. Guaranteed by design, not subject to production testing.

Typical Electrical and Thermal Characteristics



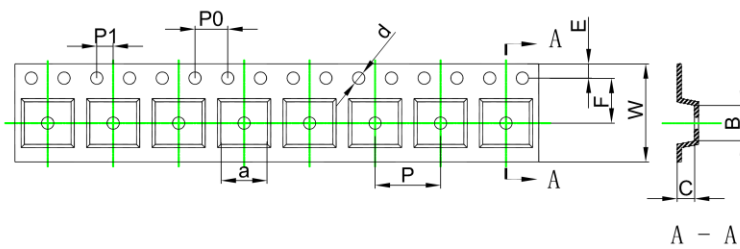
SOP8 Package Information



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°

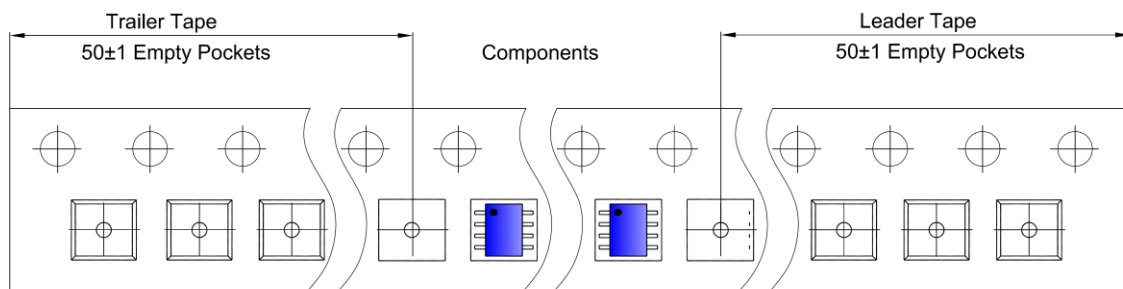
SOP8 Tape and Reel

SOP8 Embossed Carrier Tape

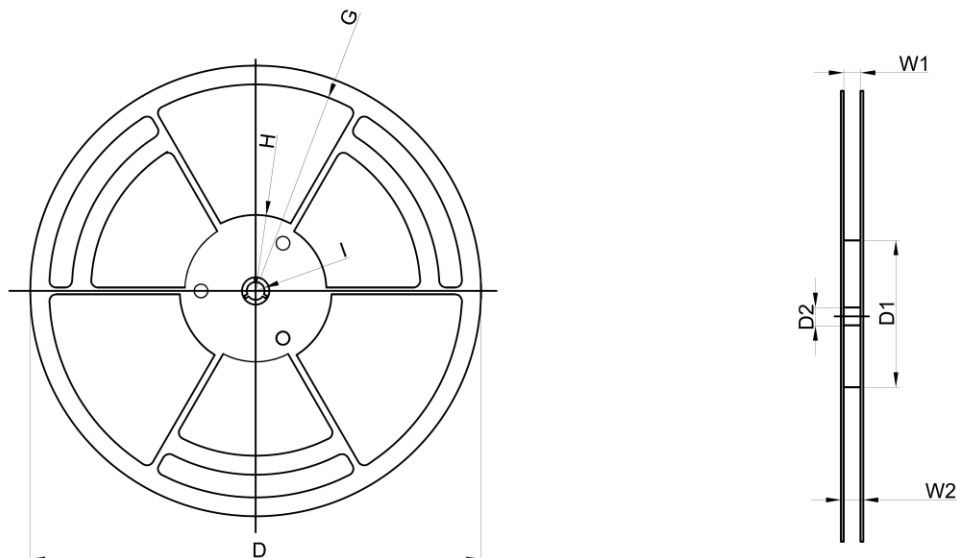


Dimensions are in millimeter										
Pkg type	a	B	C	d	E	F	P0	P	P1	W
SOP8	6.40	5.40	2.10	Ø1.50	1.75	5.50	4.00	8.00	2.00	12.00

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	