

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
30V	30mΩ@10V	3.8A
	46mΩ@4.5V	

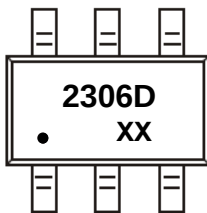
Feature

- Trench Technology Power MOSFET
- Low $R_{DS(ON)}$
- Low Gate Charge
- Low Gate Resistance

Application

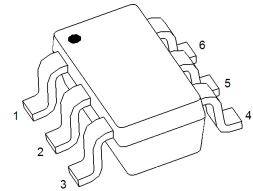
- Load Switch
- PWM

MARKING:

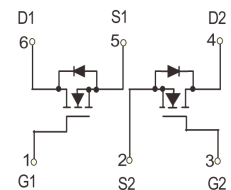


2306D = Device code
Solid point = Pin1 positioning point
XX=Date Code

SOT-23-6L



Schematic diagram



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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	30	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A = 25^\circ\text{C}$	I_D	3.8	A
Pulsed Drain Current ¹		I_{DM}	16	A
Power Dissipation ³	$T_A = 25^\circ\text{C}$	P_D	1.14	W
Thermal Resistance from Junction to Ambient ⁴		$R_{\theta JA}$	110	$^\circ\text{C/W}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55~ +150	$^\circ\text{C}$

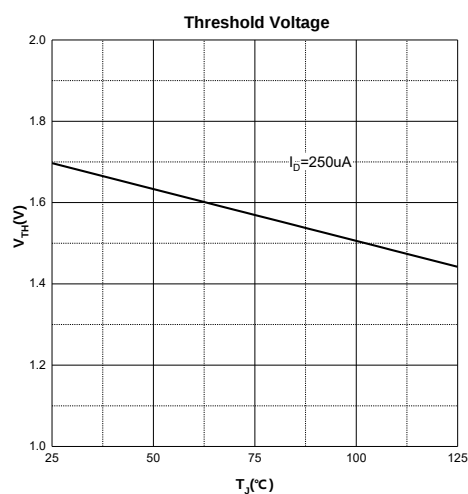
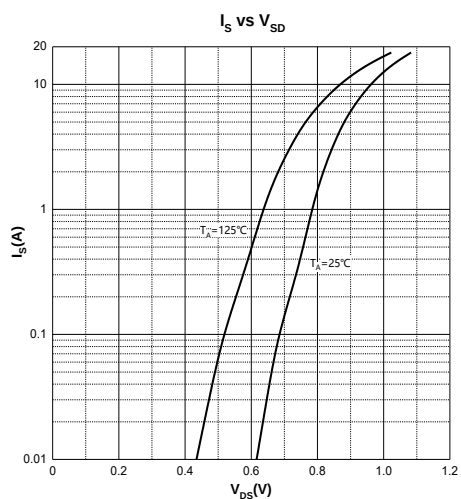
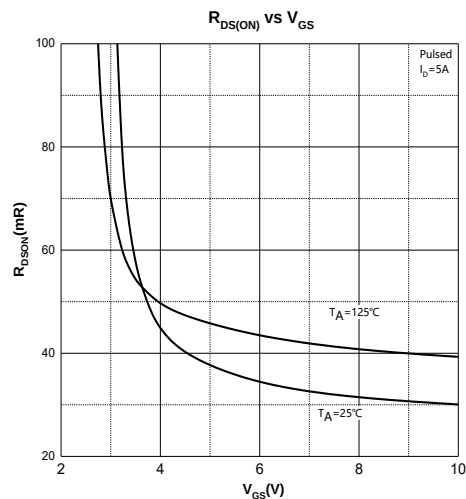
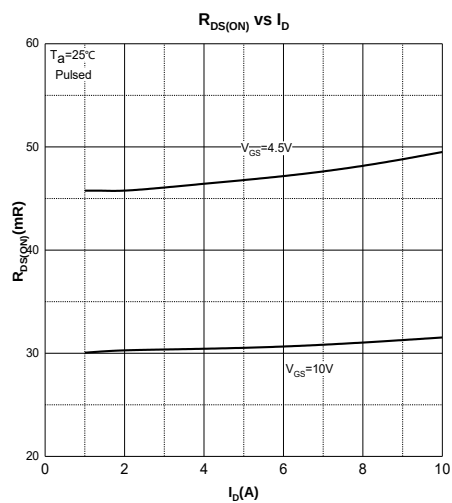
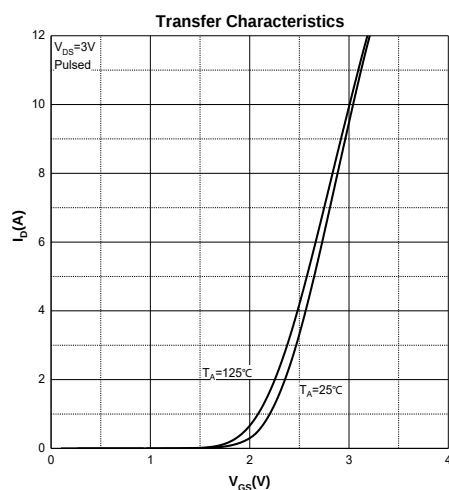
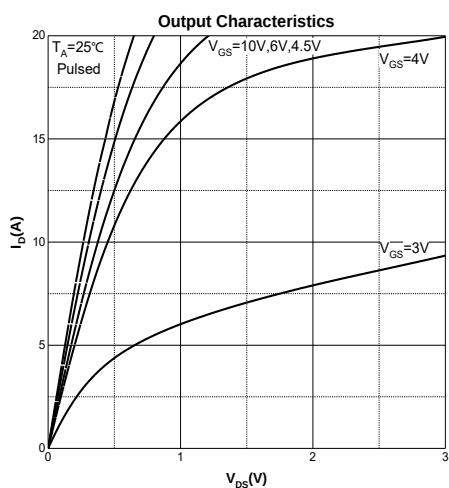
MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

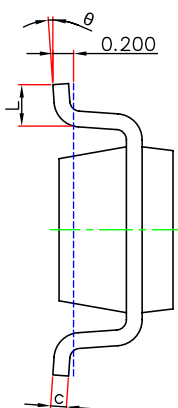
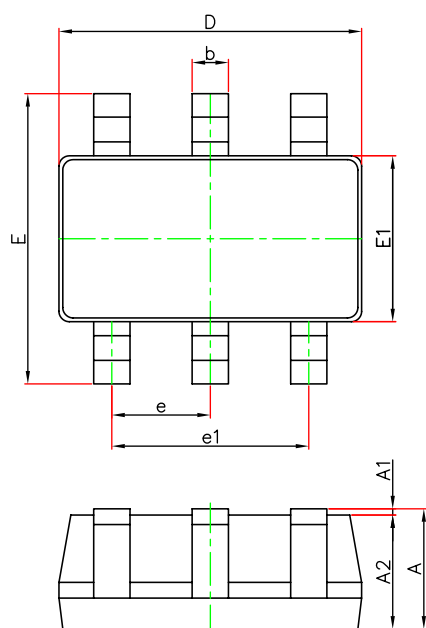
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	30			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24V, V _{GS} = 0V			1	μA
Gate - Body Leakage Current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
On Characteristics ²						
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	1	1.7	3	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 3.5A		30	45	mΩ
		V _{GS} = 4.5V, I _D = 2.8A		46	65	
Forward Transconductance	g _{FS}	V _{DS} = 4.5V, I _D = 2.5A		5.5		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 15V, V _{GS} = 0V, f = 1MHz		228		pF
Output Capacitance	C _{oss}			46		
Reverse Transfer Capacitance	C _{rss}			38		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		1.9		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 15V, V _{GS} = 10V, I _D = 3.5A		4.2		nC
Gate-source Charge	Q _{gs}			0.7		
Gate-drain Charge	Q _{gd}			1.2		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 15V, V _{GS} = 10V, R _L = 4.2Ω R _G = 3Ω		4.7		ns
Turn-on Rise Time	t _r			1.8		
Turn-off Delay Time	t _{d(off)}			20		
Turn-off Fall Time	t _f			17.5		
Source - Drain Diode Characteristics						
Diode Forward Voltage ²	V _{SD}	V _{GS} = 0V, I _S = 1.25A			1.2	V

Notes :

- 1.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 2.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 3.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.
- 4.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics



SOT-23-6L Package Information


Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E1	1.500	1.700	0.059	0.067
E	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°