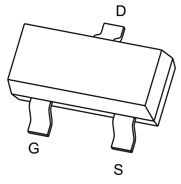
K06N06

60V N-Channel MOSFET

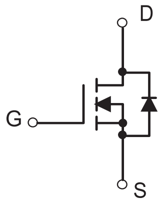
Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	29mΩ@10V	6A
	35mΩ@4.5V	

SOT-23-3L



Schematic diagram



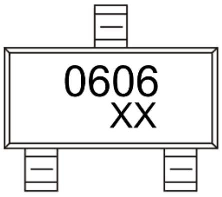
Feature

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

Application

- Load Switch
- DC/DC Converter

MARKING:



0606 = Device Code
XX = Date Code

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

Parameter		Symbol	Value	Unit
Drain - Source Voltage		V_{DS}	60	V
Gate - Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_A = 25℃	I_D	6	A
Pulsed Drain Current[1]		I_{DM}	24	A
Power Dissipation[3]	T_A = 25℃	P_D	1.4	W
Thermal Resistance from Junction to Ambient[4]		$R_{\theta JA}$	89	℃/W
Junction Temperature		T_J	150	℃
Storage Temperature		T_{STG}	-55~ +150	℃

Electrical Characteristics (T_A=25℃ 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	60			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 48V, 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	1.6	3	V
Drain-source On-resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 4A		29	40	mΩ
		V_{GS} = 4.5V, I_D = 2A		35	48	
Forward Transconductance	g_{FS}	V_{DS} = 5V, I_D = 5A		11		S
Dynamic Characteristics						
Input Capacitance	C_{iss}	V_{DS} = 30V, V_{GS} = 0V, f = 1MHz		974		pF
Output Capacitance	C_{oss}			62		
Reverse Transfer Capacitance	C_{rss}			53		
Gate Resistance	R_g	V_{DS} = 0V, V_{GS} = 0V, f = 1MHz		1.8		Ω
Switching Characteristics						
Total Gate Charge	Q_g	V_{DS} = 30V, V_{GS} = 10V, I_D = 5A		15		nC
Gate-source Charge	Q_{gs}			2.5		
Gate-drain Charge	Q_{gd}			5.2		
Turn-on Delay Time	$t_{d(on)}$	V_{DD} = 30V, V_{GS} = 10V, R_L = 6Ω R_G = 2Ω		5.6		ns
Turn-on Rise Time	t_r			4.8		
Turn-off Delay Time	$t_{d(off)}$			26		
Turn-off Fall Time	t_f			3.5		
Source - Drain Diode Characteristics						
Diode Forward Voltage[2]	V_{SD}	V_{GS} = 0V, I_S = 0.3A			1.2	V

Notes :

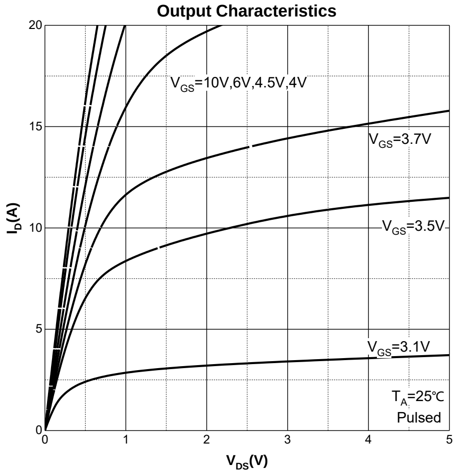
1.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.

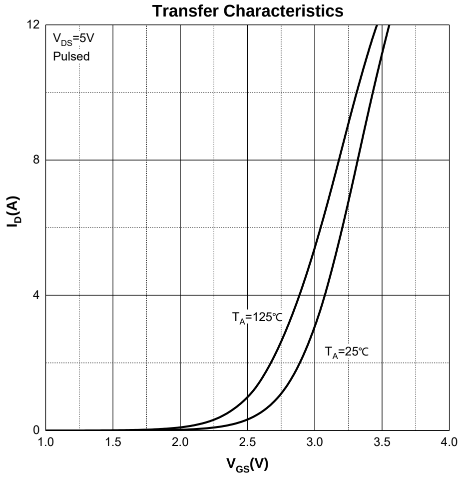
2.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

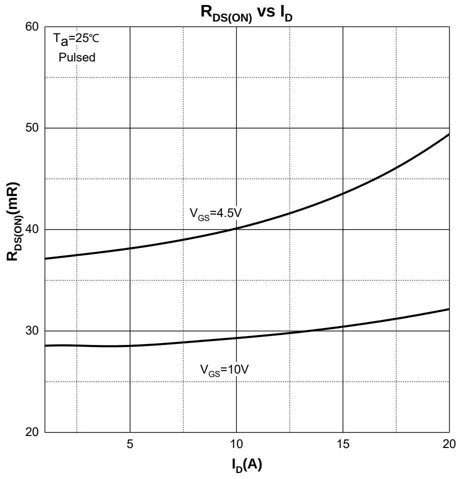
3.The power dissipation P_D is limited by $T_{J(MAX)}$ = 150°C.

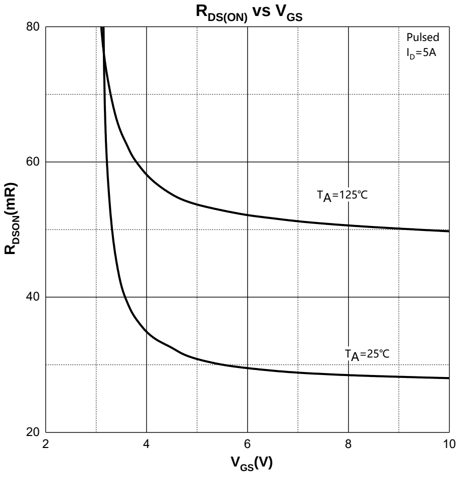
4.Device mounted on 1in^2 FR-4 board with 2oz. Copper, in a still air environment with T_A =25°C.

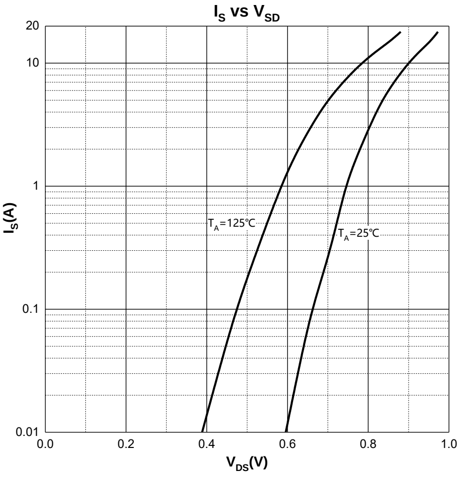
Typical Characteristics

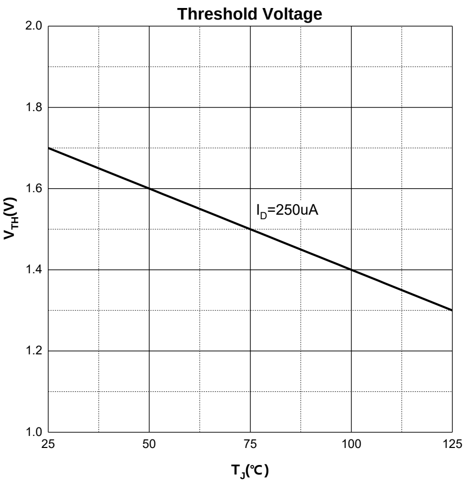

Output Characteristics


Transfer Characteristics

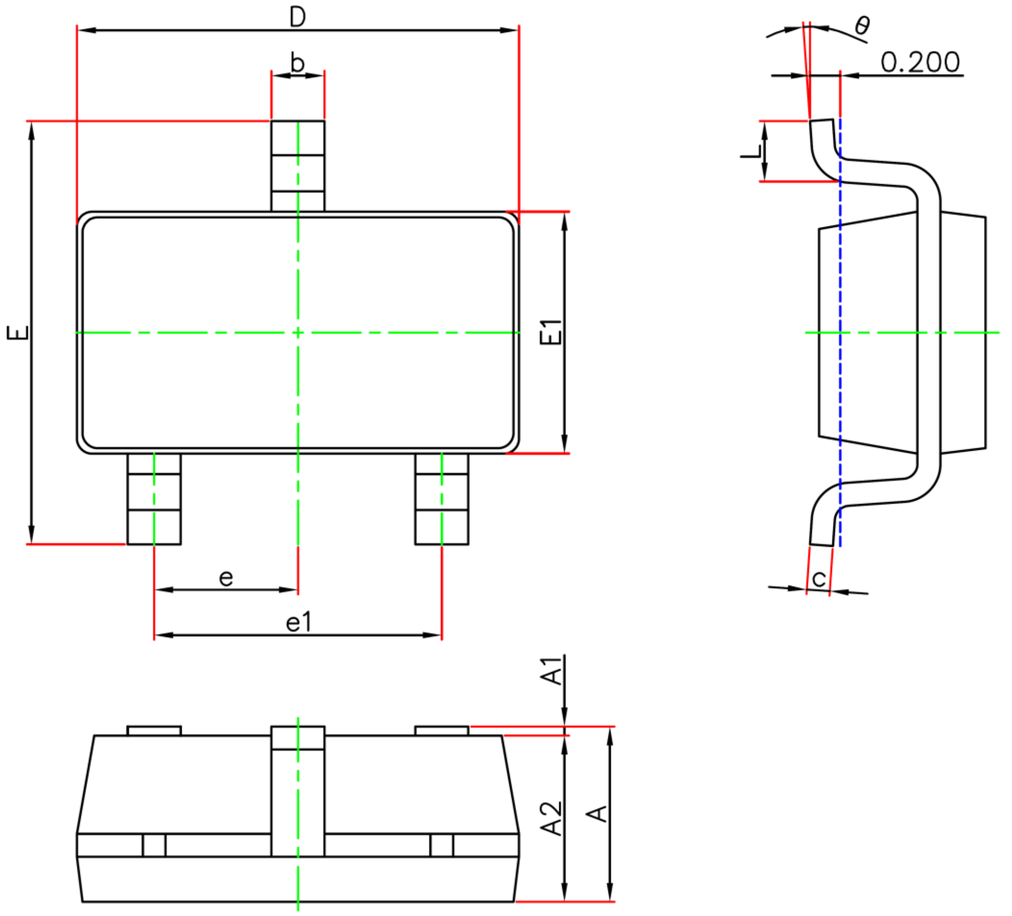

RDS(ON) vs ID


RDS(ON) vs VGS


IS vs VSD


Threshold Voltage

SOT-23-3L Package Outline Dimensions



<table>
<tr><th rowspan="2">Symbol</th><th colspan="2">Dimensions In Millimeters</th><th colspan="2">Dimensions In Inches</th></tr>
<tr><th>Min.</th><th>Max.</th><th>Min.</th><th>Max.</th></tr>
<tr><td>A</td><td>1.050</td><td>1.250</td><td>0.041</td><td>0.049</td></tr>
<tr><td>A1</td><td>0</td><td>0.150</td><td>0.000</td><td>0.006</td></tr>
<tr><td>A2</td><td>1.050</td><td>1.250</td><td>0.041</td><td>0.049</td></tr>
<tr><td>b</td><td>0.300</td><td>0.500</td><td>0.012</td><td>0.020</td></tr>
<tr><td>c</td><td>0.100</td><td>0.200</td><td>0.004</td><td>0.008</td></tr>
<tr><td>D</td><td>2.820</td><td>3.020</td><td>0.111</td><td>0.119</td></tr>
<tr><td>E</td><td>2.650</td><td>2.950</td><td>0.104</td><td>0.116</td></tr>
<tr><td>E1</td><td>1.500</td><td>1.700</td><td>0.059</td><td>0.067</td></tr>
<tr><td>e</td><td colspan="2">0.950TYP</td><td colspan="2">0.037TYP</td></tr>
<tr><td>e1</td><td>1.800</td><td>2.000</td><td>0.071</td><td>0.079</td></tr>
<tr><td>L</td><td>0.300</td><td>0.600</td><td>0.012</td><td>0.024</td></tr>
<tr><td>θ</td><td>0°</td><td>8°</td><td>0°</td><td>8°</td></tr>
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