

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
60V	70mΩ@10V	5A
	82mΩ@4.5V	

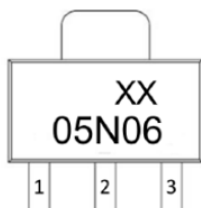
Feature

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

Application

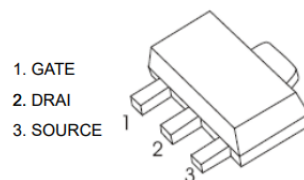
- Load Switch
- PWM

MARKING:

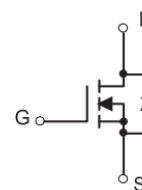


05N06 = Device Code
 XX = Date Code

SOT-89-3L



Schematic diagram



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

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V_{DS}	60	V
Gate - Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	5	A
Pulsed Drain Current ¹	I_{DM}	10	A
Power Dissipation ³	P_D	2	W
Thermal Resistance from Junction to Ambient ⁴	$R_{\theta JA}$	65	$^\circ\text{C/W}$
Junction Temperature	T_J	150	$^\circ\text{C}$
Storage Temperature	T_{STG}	-55~ +150	$^\circ\text{C}$

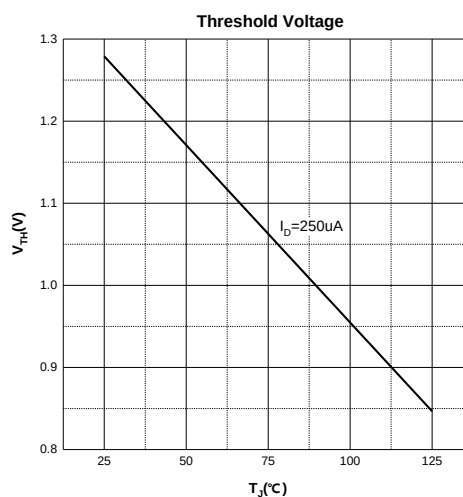
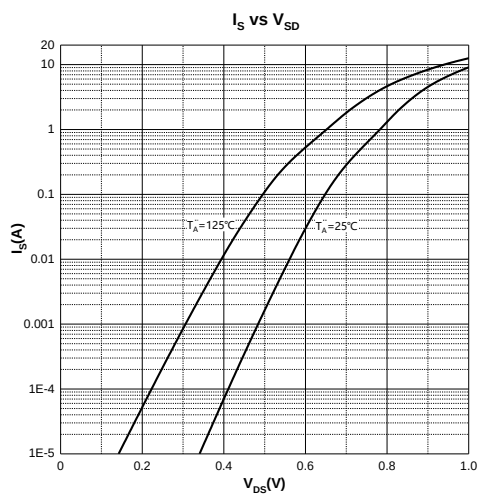
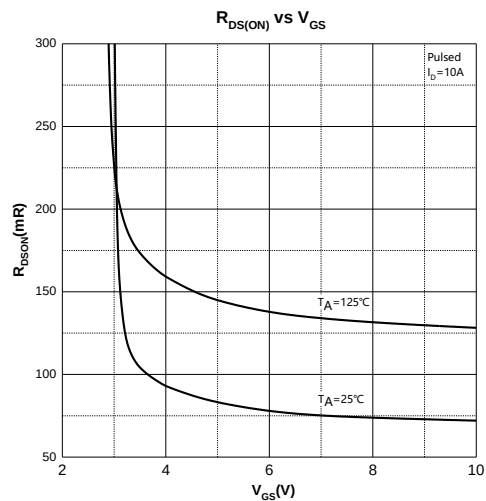
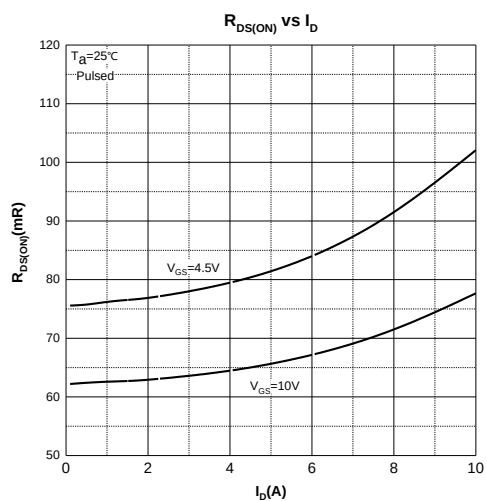
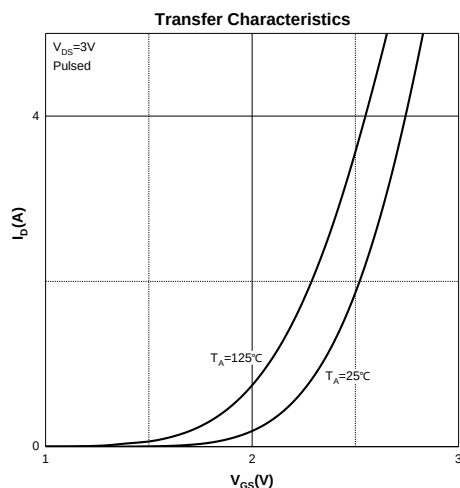
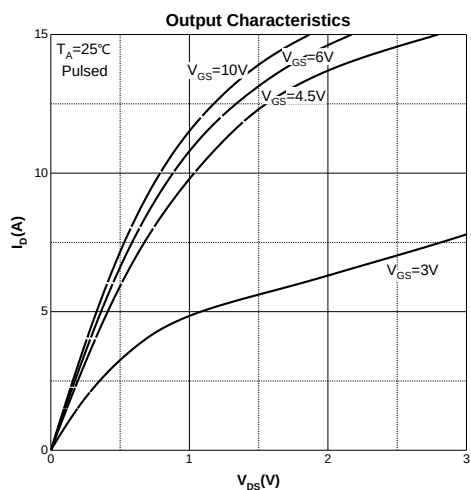
MOSFET ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Off Characteristics						
Drain - Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = 250μA	60			V
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60V, 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	0.5	1.2	2	V
Drain-source On-resistance	R _{DS(on)}	V _{GS} = 10V, I _D = 3A		70	90	mΩ
		V _{GS} = 4.5V, I _D = 3A		82	125	
Forward Transconductance	g _{FS}	V _{DS} = 15V, I _D = 2A		2.5		S
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 30V, V _{GS} = 0V, f = 1MHz		421		pF
Output Capacitance	C _{oss}			28.1		
Reverse Transfer Capacitance	C _{rss}			22.6		
Gate Resistance	R _g	V _{DS} = 0V, V _{GS} = 0V, f = 1MHz		2		Ω
Switching Characteristics						
Total Gate Charge	Q _g	V _{DS} = 30V, V _{GS} = 4.5V, I _D = 3A		7		nC
Gate-source Charge	Q _{gs}			1.2		
Gate-drain Charge	Q _{gd}			1.5		
Turn-on Delay Time	t _{d(on)}	V _{DD} = 30V, V _{GS} = 10V, R _L = 10Ω R _G = 3Ω		4.7		ns
Turn-on Rise Time	t _r			1.8		
Turn-off Delay Ttime	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 = 3A			1.2	V

Notes :

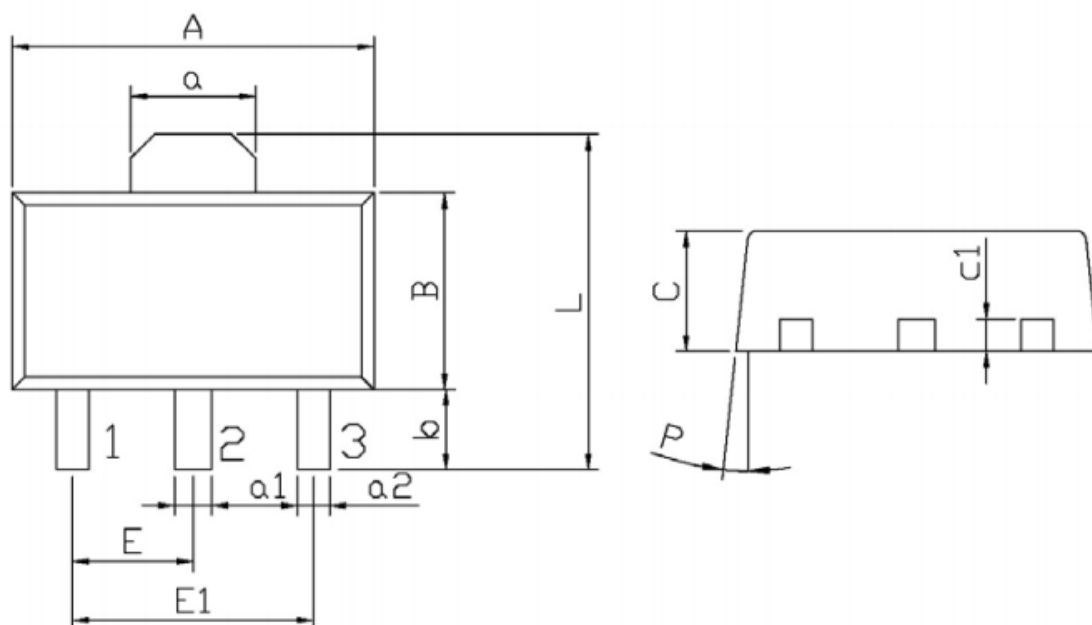
- 1.Pulse Test : Pulse Width ≤ 10μs, duty cycle ≤ 1%.
- 2.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
- 3.The power dissipation P_D is limited by T_{J(MAX)} = 150°C.
- 4.Device mounted on 1in² FR-4 board with 2oz. Copper, in a still air environment with T_A = 25°C.

Typical Characteristics



SOT-89

单位: mm



Symbol	Dimensions In Millimeters		Symbol	Dimensions In Millimeters	
	Min	Max		Min	Max
A	4.4	4.7	a1	0.36	0.56
B	2.35	2.65	a2	0.30	0.50
L	3.878	4.478	C	1.40	1.70
a	1.45	1.65	c1	0.35	0.50
E	1.40	1.60	P	6°	
E1	2.80	3.20			
b	0.80	1.20			