

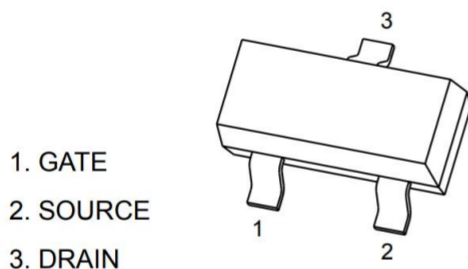
Product Summary

- V_{DS} -30 V
- I_{DS} (at $V_{GS}=-10V$) -5.6 A
- $R_{DS(ON)}$ (at $V_{GS}=-10V$) <46mΩ(TYP)

Application

- Interfacing Switching
- Portable equipment and battery
- Load Switch

Package and Pin Configuration



SOT23-3L

Marking:3409

Circuit diagram



Absolute Maximum Ratings ($T_A=25^{\circ}C$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V_{DS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	TC=25°C	I_D	-5.6	A
	TC=70°C		-5.1	A
Pulsed Drain Current (t = 100 μs)		I_{DM}	-18	A
Maximum Power Dissipation		P_D	2.5	W
Operating Junction Temperature Range		T_J	-55 to +150	°C
Storage Temperature Range		T_{stg}	-55 to +150	°C

Thermal Characteristic

PARAMETER	Symbol	Value	Unit
Thermal Resistance from Junction to Ambient(t≤10s)	$R_{\theta JA}$	100	°C/W

Note : When mounted on 1" square PCB (FR4 material).

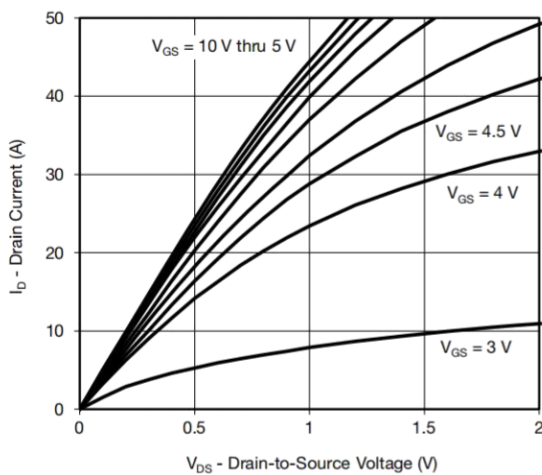
Electrical Characteristics (T_A=25°C unless otherwise noted)

PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V _{GS} =0V, I _D = -250μA	BV _{DSS}	-30	--	--	V
Gate-Source Threshold Voltage	V _{DS} =V _{GS} , I _D = -250μA	V _{GS(th)}	-0.5	--	-2.0	V
Gate-Source Leakage	V _{DS} =0V, V _{GS} = ±20V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V _{DS} = -30V, V _{GS} =0V	I _{DSS}	--	-0.1	-1	μA
	V _{DS} = -30V, T _J =55°C		--	--	-5	μA
Drain-Source On-State Resistance (Note 1)	V _{GS} = -10V, I _D = -4.4A	R _{DS(on)}	--	46	56	mΩ
	V _{GS} = -6V, I _D = -4A		--	49	61	
	V _{GS} = -4.5V, I _D = -3.6A		--	54	75	
Forward Transconductance (Note 2)	V _{DS} = -15V, I _D = -3.4A	g _{fs}	--	18	--	S
Dynamic (Note 2)						
Total Gate Charge (Note 3)	V _{DS} = -15V, I _D = - 5.4A, V _{GS} = -4.5V	Q _g	--	11.4	--	nC
Gate-Source Charge (Note 3)		Q _{gs}	--	3.4	--	
Gate-Drain Charge (Note 3)		Q _{gd}	--	3.8	--	
Input Capacitance	V _{DS} = -15V, V _{GS} = 0V, F= 1.0MHz	C _{iss}	--	1295	--	pF
Output Capacitance		C _{oss}	--	150	--	
Reverse Transfer Capacitance		C _{rss}	--	160	--	
Switching						
Turn-On Delay Time (Note 3)	V _{DS} = -10V, I _D = - 4.3A, V _{GS} = -4.5V, R _G = 1Ω	t _{d(on)}	--	28	42	nS
Rise Time (Note 3)		t _r	--	16	24	
Turn-Off Delay Time (Note 3)		t _{d(off)}	--	30	45	
Fall Time (Note 3)		t _f	--	10	20	
Source-Drain Diode Ratings and Characteristics (Note 2)						
Forward Voltage	V _{GS} = 0V, I _F = -1A	V _{SD}	--	-0.8	-1.2	V
Continuous Source Current	Integral reverse diode in the MOSFET	I _S	--	--	-2.1	A
Pulsed Current (Note 1)		I _{SM}	--	--	-18	A

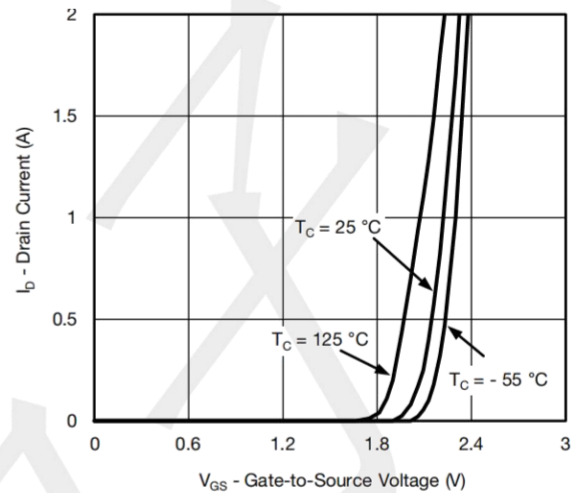
Notes:

1. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
2. Guaranteed by design, not subject to production testing.
3. Independent of operating temperature

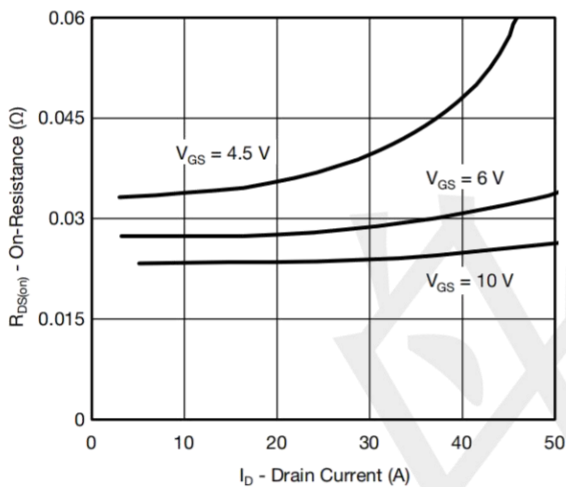
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



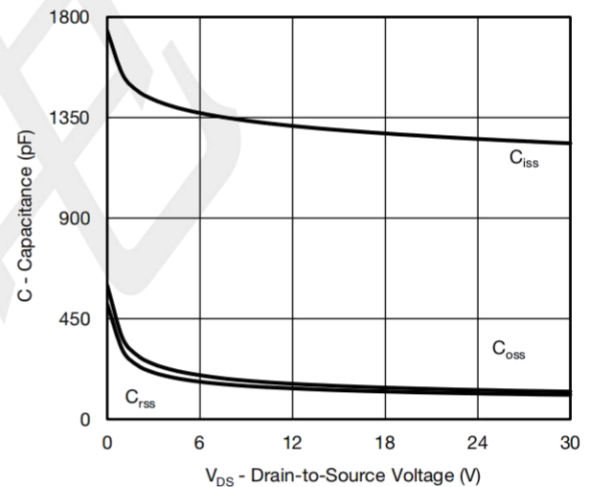
Output Characteristics



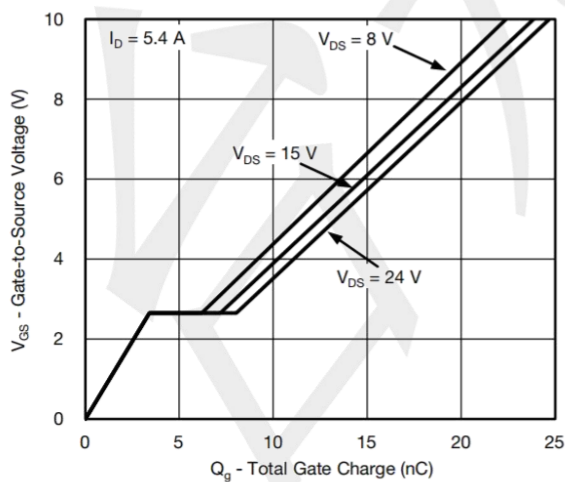
Transfer Characteristics



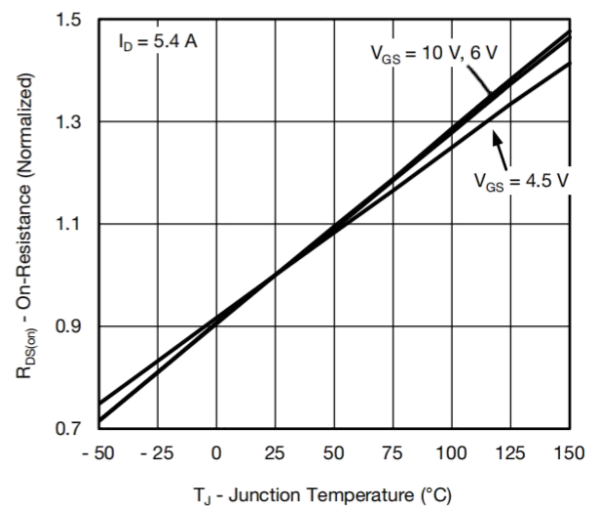
On-Resistance vs. Drain Current



Capacitance



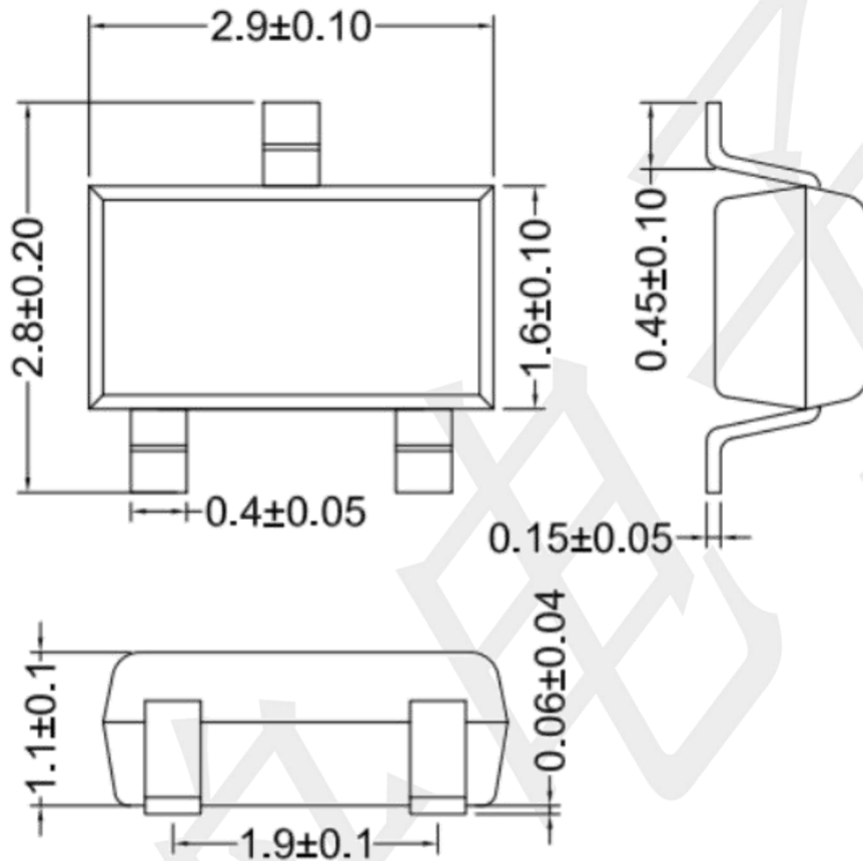
Gate Charge



On-Resistance vs. Junction Temperature

Package Outline Dimensions (unit: mm)

SOT-23-3L



Mounting Pad Layout (unit: mm)

