



SOT-23-3L Plastic-Encapsulate MOSFETS

CC05P04 P-Channel Power MOSFET

V_{DS}	$R_{DS(ON)}$ (Typ.)	I_D
-40 V	63m Ω @-10V 98m Ω @-4.5V	-5.3A

DESCRIPTION

The CC05P04 provides excellent $R_{DS(ON)}$ with low gate charge.

It can be used in a wide variety of applications.

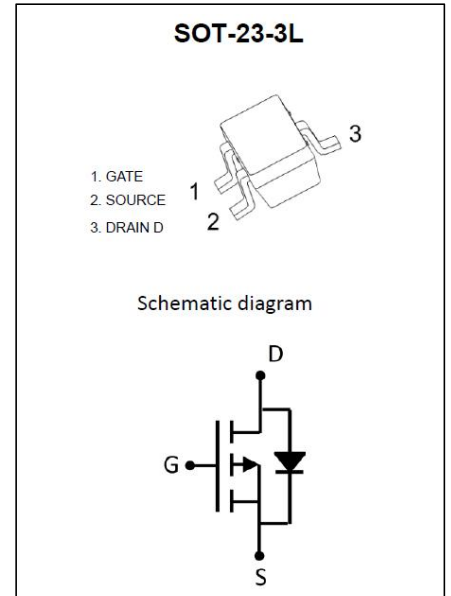
FEATURES

- TrenchFET Power MOSFET
- Exceptional on-resistance and maximum DC current capability
- AEC-Q101 Qualified

APPLICATIONS

- Load Switch for Portable Devices
- DC/DC Converter
- Battery Switch

MARKING



ABSOLUTE MAXIMUM RATINGS(T_a=25°C unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	-40	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current ¹	I _D	-5.3	A
Pulsed Drain Current ²	I _{DM}	-21.2	A
Total Power Dissipation ⁴	P _D	0.45	W
Thermal Resistance from Junction to Ambient	R _{θJA}	313	°C/W
Junction Temperature	T _J	175	°C
Storage Temperature	T _{STG}	-55~ +175	°C

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

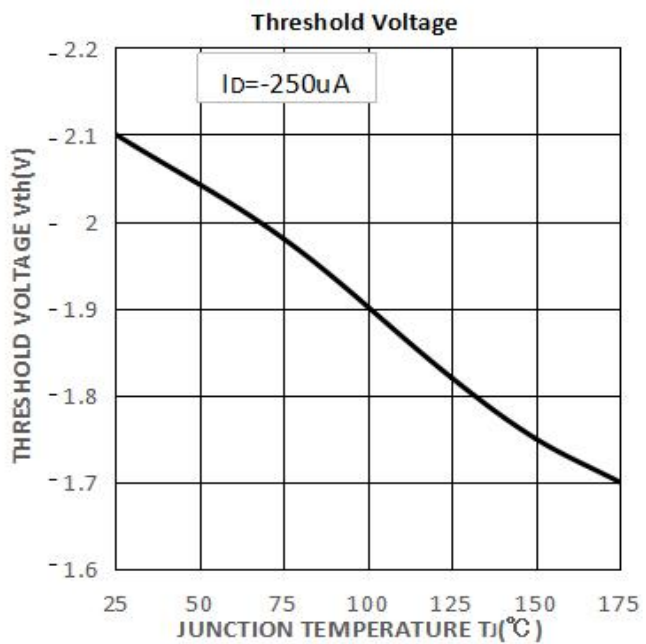
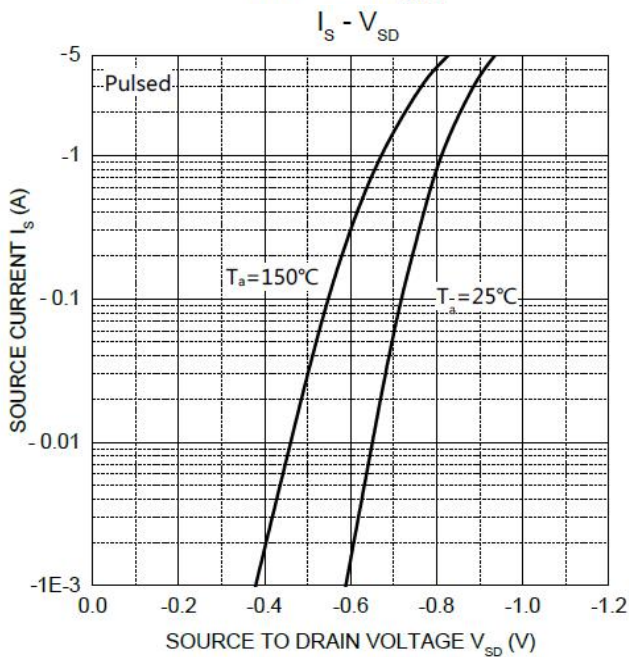
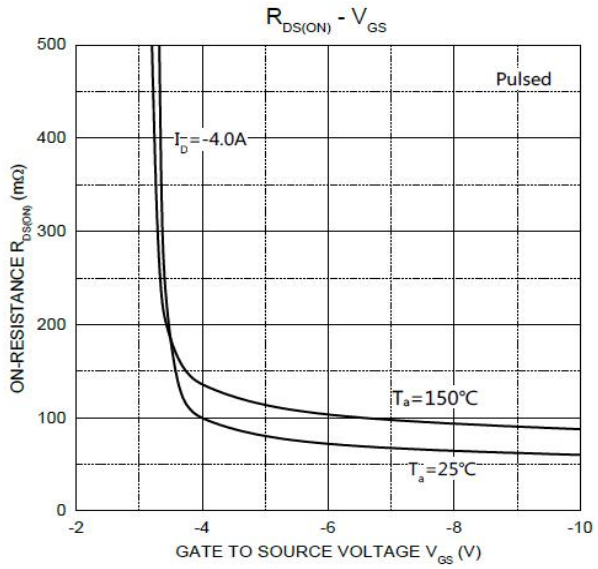
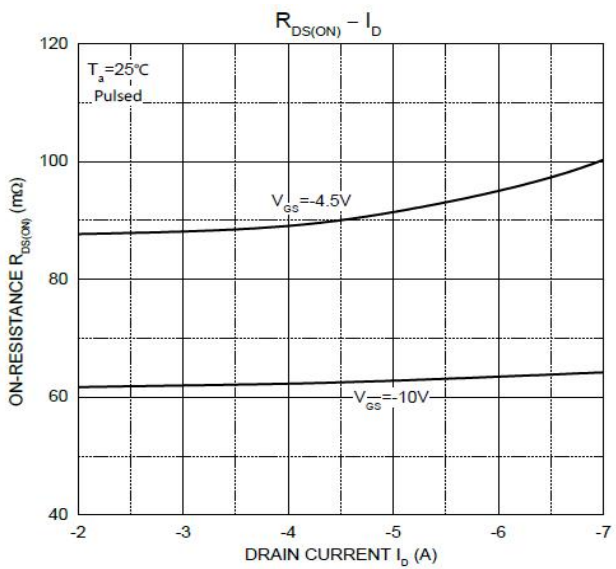
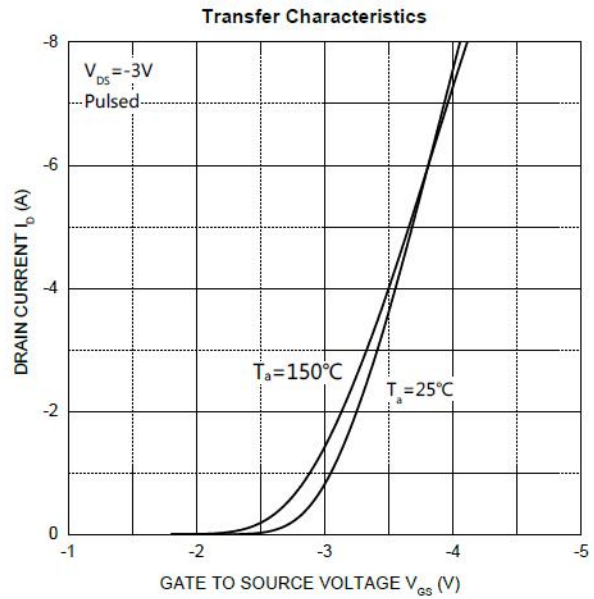
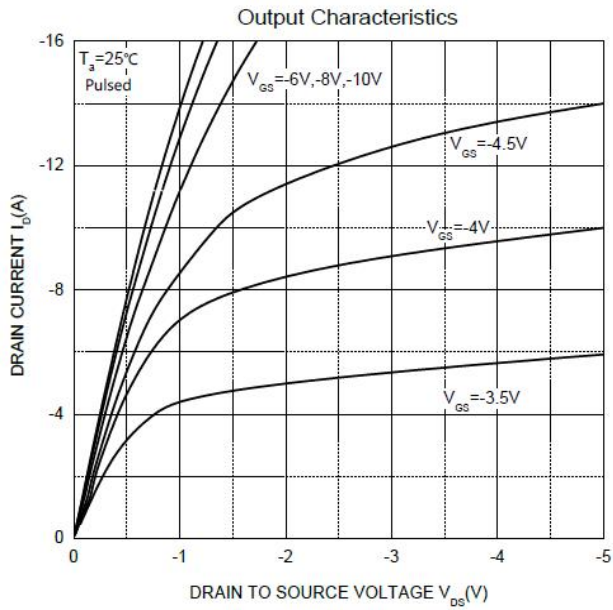
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	V _{(BR)DSS}	V _{GS} = 0V, I _D = -250μA	-40			V
Zero gate voltage drain current	I _{DSS}	V _{DS} = -40V, V _{GS} = 0V			-1	μA
Gate-body leakage current	I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100	nA
Gate threshold voltage ¹	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250μA	-1.0	-2.1	-3.0	V
Forward tranconductance	g _{FS}	V _{DS} = -5, I _D = -4.1A	7			S
Drain-source on-resistance ¹	R _{DS(on)}	V _{GS} = -10V, I _D = -5A		63	82	mΩ
		V _{GS} = -4.5V, I _D = -4A		98	126	
Dynamic characteristics²						
Input Capacitance	C _{iss}	V _{DS} = -20V, V _{GS} = 0V, f = 1MHz		650		pF
Output Capacitance	C _{oss}			90		
Reverse Transfer Capacitance	C _{rss}			70		
Switching Characteristics²						
Total Gate Charge	Q _g	V _{DS} = -20V, V _{GS} = -10V, I _D = -3.1A		14		nC
Gate-Source Charge	Q _{gs}			2.9		
Gate-Drain Charge	Q _{gd}			3.8		
Turn-on delay time	t _{d(on)}	V _{DD} = -20V, V _{GS} = -10V, RG = 3Ω, RL = 2Ω		8		ns
Turn-on rise time	t _r			9		
Turn-off delay time	t _{d(off)}			28		
Turn-off fall time	t _f			10		
Diode Characteristics						
Diode Forward Voltage ¹	V _{DS}	V _{GS} = 0V, I _S = -2.5A		-0.87	-1.2	V

Note :

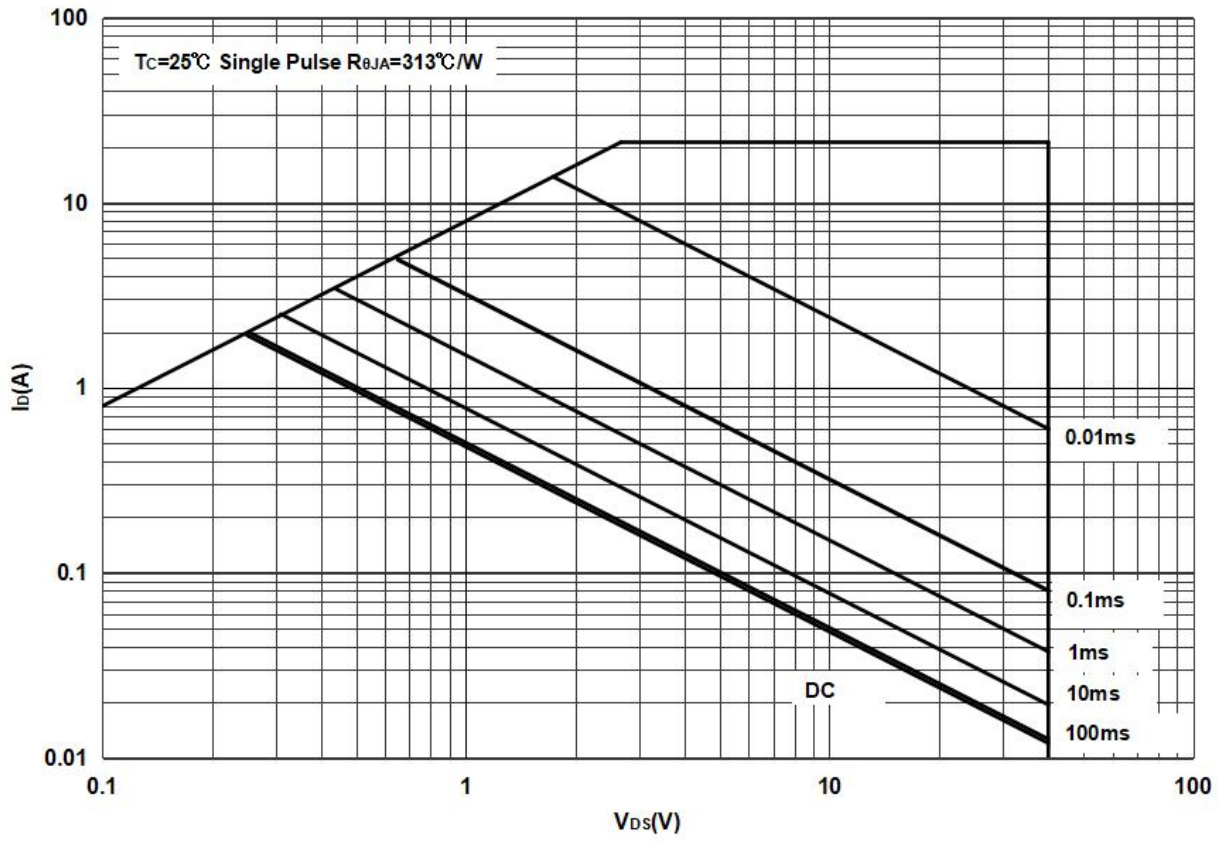
1.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.

2.Guaranteed by design,not subject to production testing.

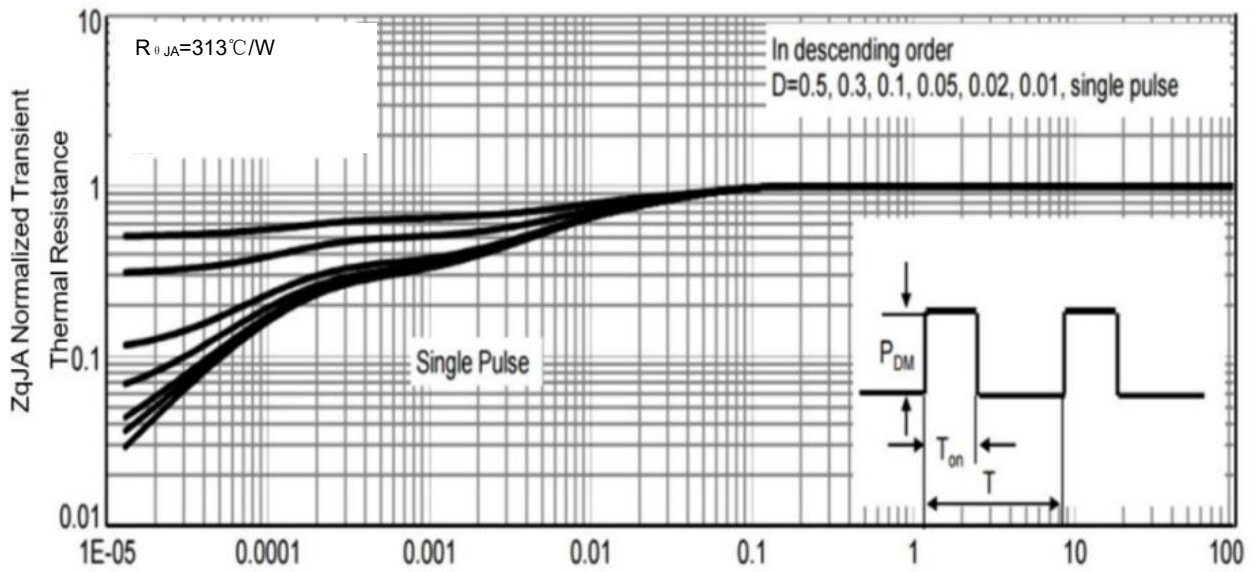
Characteristics Curve:



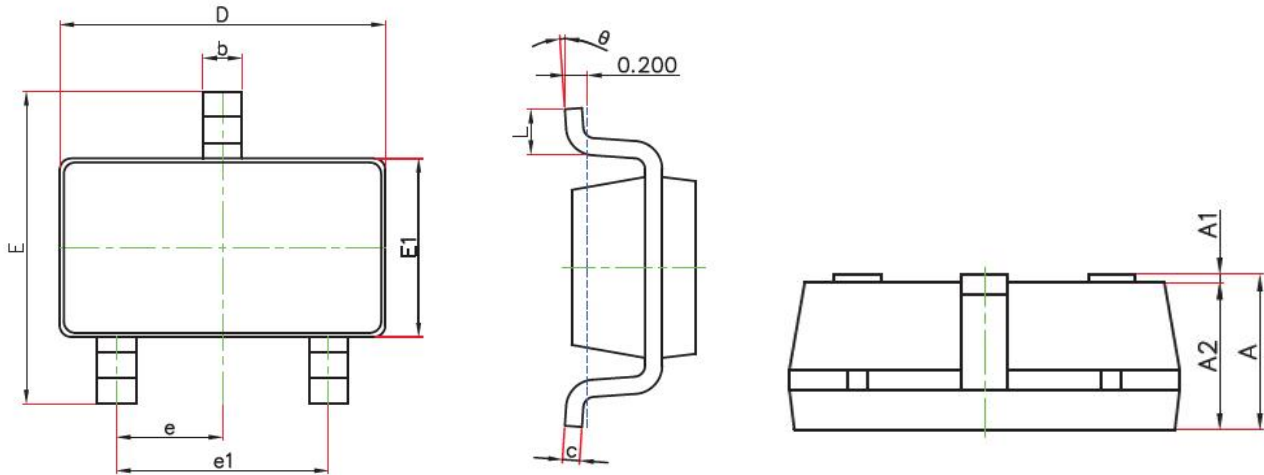
Maximum Forward Biased Safe Operating Area



Normalized Thermal Transient Impedance



SOT-23-3L Package Outline Dimensions



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°

NOTICE

Cloudchild reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Cloudchild does not assume any liability arising out of the application or use of any product described herein.

ChongQing Cloudchild Technology Co., Ltd. (short for Cloudchild) exerts the greatest possible effort to ensure high quality and reliability. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing Cloudchild products, to comply with the standards of safety in making a safe design for the entire system, including redundancy, fire-prevention measures, and malfunction prevention, to prevent any accidents, fires, or community damage that may ensue. In developing your designs, please ensure that Cloudchild products are used within specified operating ranges as set forth in the most recent Cloudchild products specifications.

Date of change	Rev #	revise content
2023/2/16	A/0	/