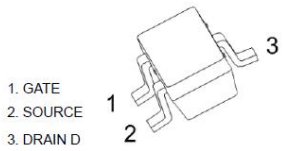
CHONGQING CLOUDCHILD TECHNOLOGY CO., LTD

SOT-23-3L Plastic-Encapsulate MOSFETS

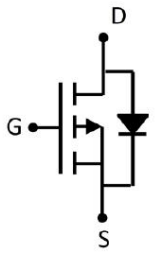
CC05P04 P-Channel Power MOSFET

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

SOT-23-3L



Schematic diagram



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 capablilty
- AEC-Q101 Qualified

APPLICATIONS

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

MARKING

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

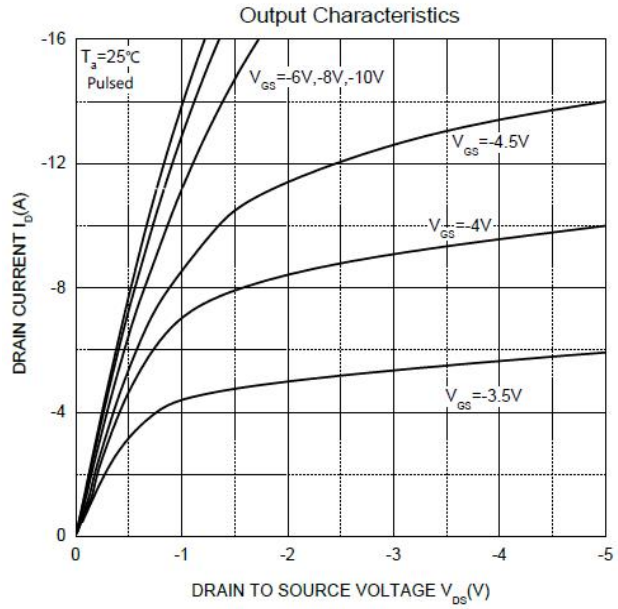
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DSS}	-40	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current[1]	I_D	-5.3	A
Pulsed Drain Current[2]	I_{DM}	-21.2	A
Total Power Dissipation[4]	P_D	0.45	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	313	℃/W
Junction Temperature	T_J	175	℃
Storage Temperature	T_{STG}	-55~ +175	℃

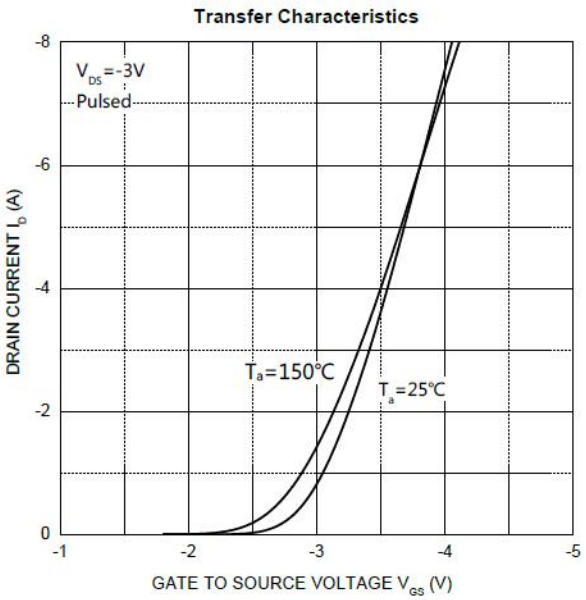
MOSFET ELECTRICAL CHARACTERISTICS(Ta=25℃ unless otherwise noted)

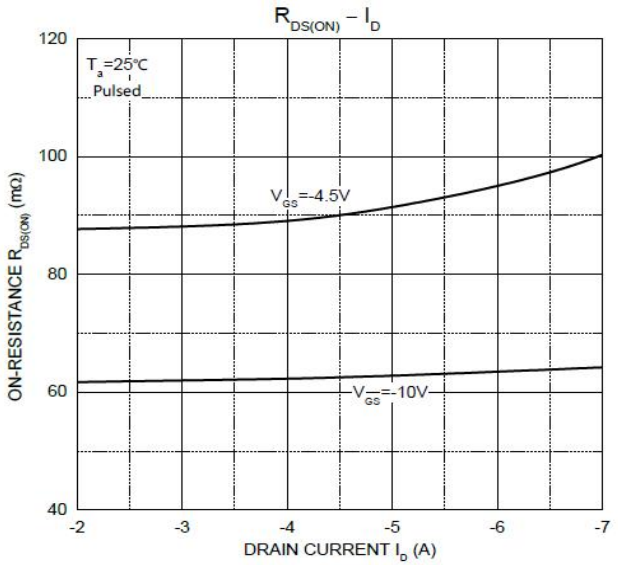
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D =-250μA	-40			V
Zero gate voltage drain current	I_{DSS}	V_{DS} =-40V,V_{GS} =0V			-1	μA
Gate-body leakage current	I_{GSS}	V_{GS} =±20V, V_{DS} =0V			±100	nA
Gate 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 characteristics[2]						
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 Characteristics[2]						
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 , R_G=3Ω,R_L=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

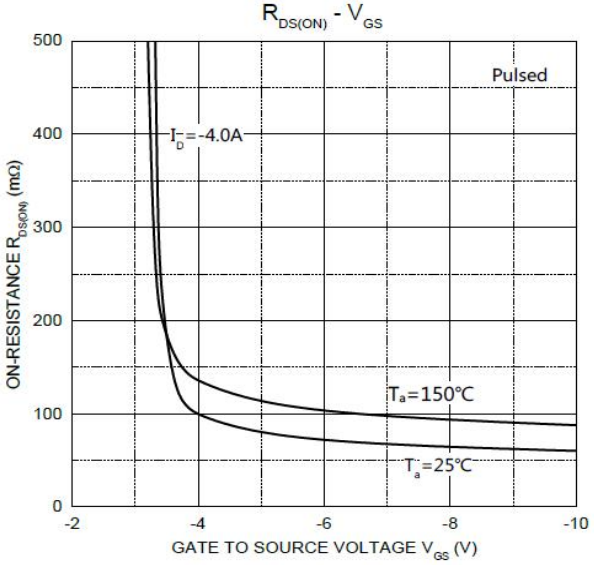
Note :
1.Pulse Test : Pulse Width ≤ 300μs, duty cycle ≤ 2%.
2.Guaranteed by design,not subject to production testing.

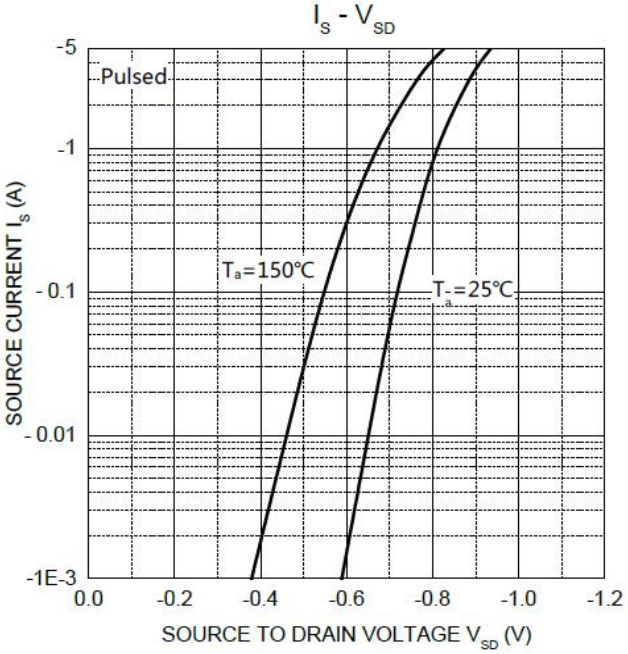
Characteristics Curve：

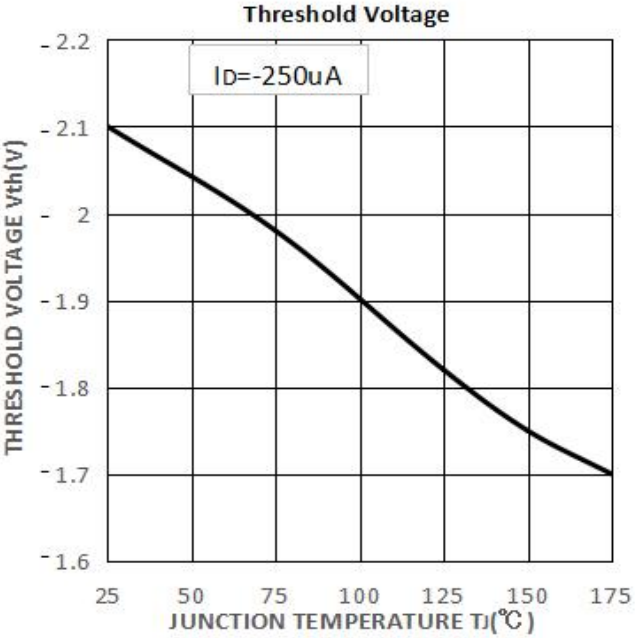




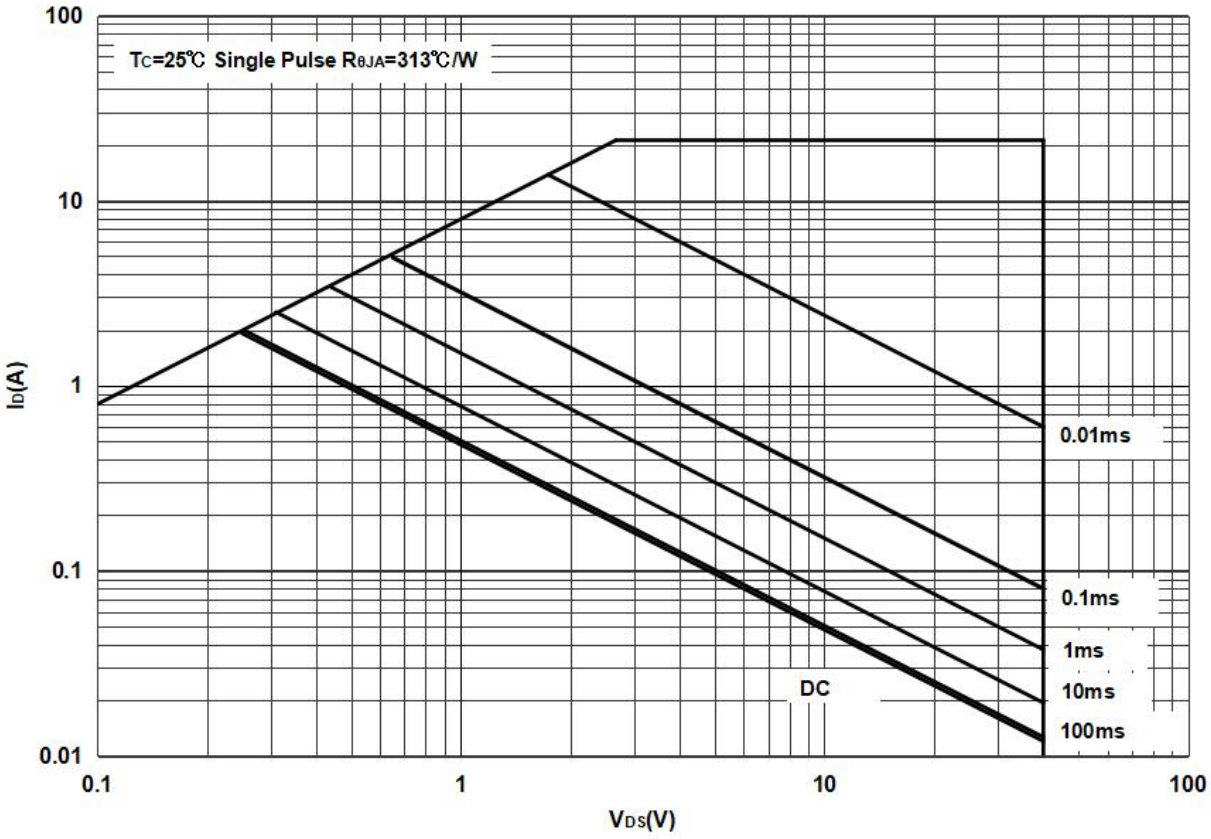




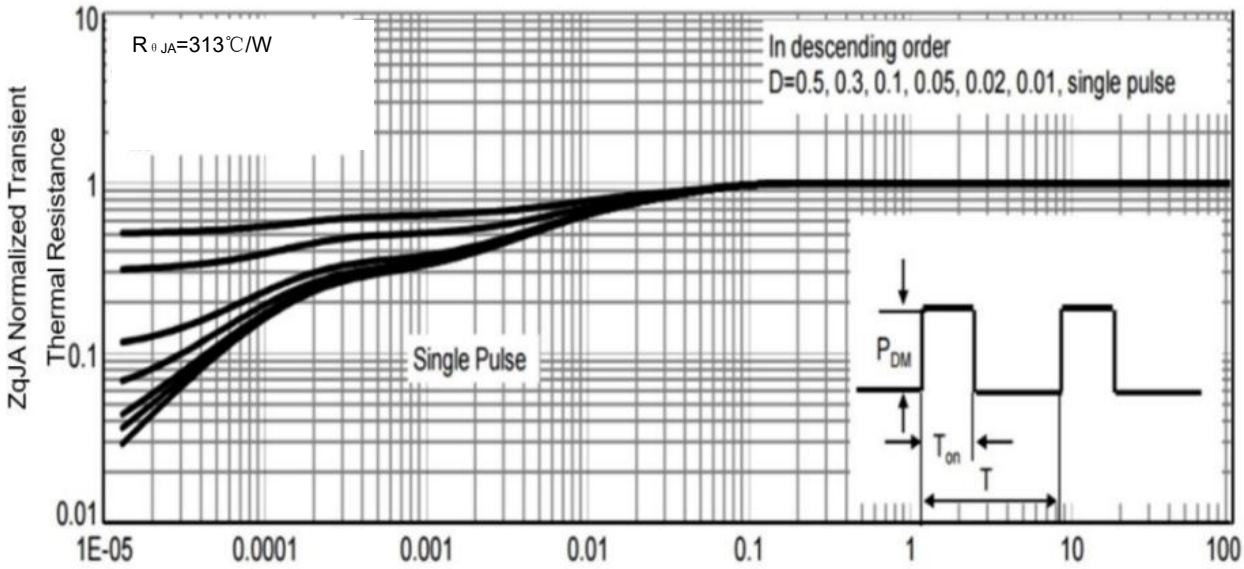




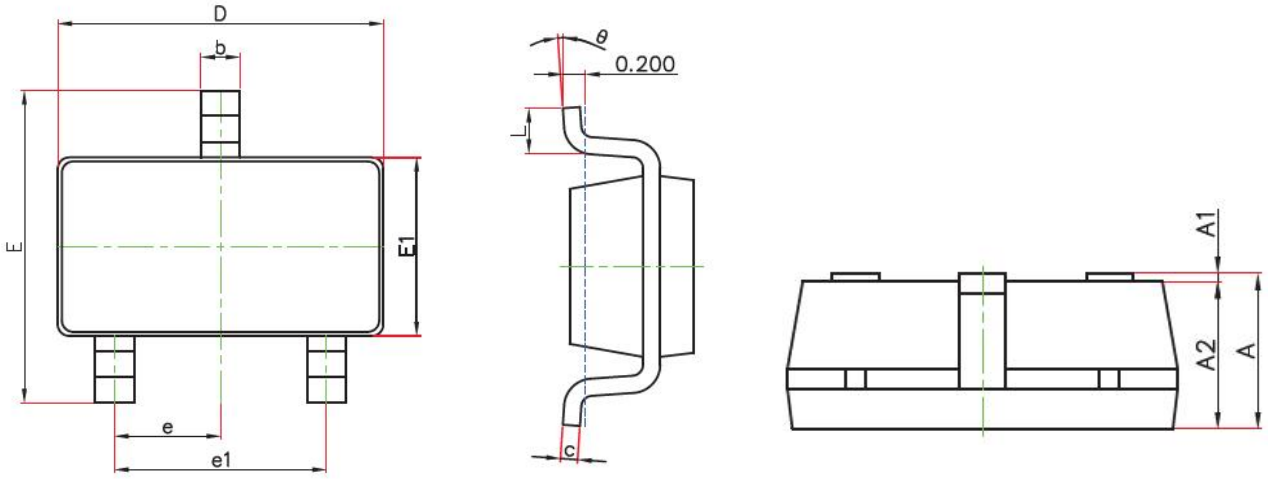
Maximum Forward Biased Safe Operating Area



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°

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