



CHONGQING CLOUDCHILD TECHNOLOGY CO.,LTD

## SOT-23 Plastic-Encapsulate MOSFETS

### CC1P10

P-Channel Power MOSFET

$V_{DSS}$	$R_{DS(ON)}$ (Typ.)	$I_D$
-100 V	580m $\Omega$ @-10V 650m $\Omega$ @-4.5V	-1A

### DESCRIPTION

The CC1P10 provides excellent  $R_{DS(ON)}$  with low gate charge.

It can be used in a wide variety of applications.

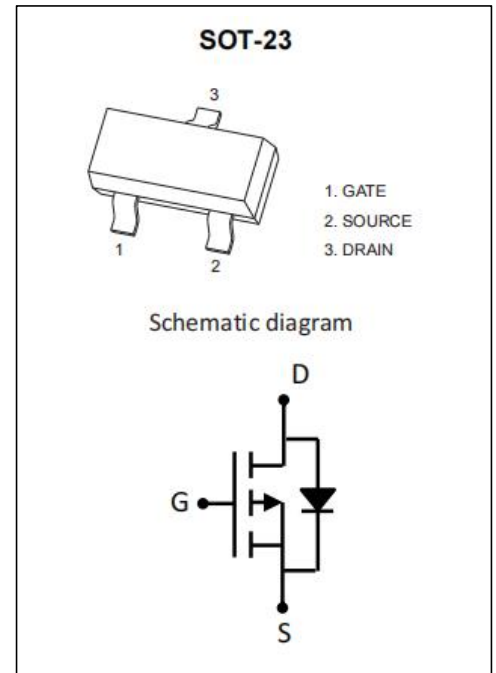
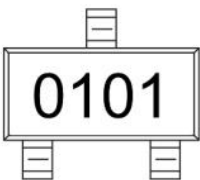
### FEATURES

- TrenchFET Power MOSFET
- Excellent  $R_{DS(ON)}$
- Low Gate Charge
- AEC-Q101 Qualified

### APPLICATIONS

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

### MARKING



**ABSOLUTE MAXIMUM RATINGS( $T_j=25^{\circ}\text{C}$  unless otherwise specified)**

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	-100	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current <sup>1,2</sup>	$I_D$	-1.0	A
Pulsed Drain Current	$I_{DM}$	-4.0	A
Power Dissipation	$P_D$	0.92	W
Thermal Resistance from Junction to Ambient <sup>1,2</sup>	$R_{\theta JA}$	162	$^{\circ}\text{C}/\text{W}$
Junction Temperature	$T_J$	175	$^{\circ}\text{C}$
Storage Temperature	$T_{STG}$	-55~ +175	$^{\circ}\text{C}$

**MOSFET ELECTRICAL CHARACTERISTICS( $T_C=25^{\circ}\text{C}$  unless otherwise noted)**

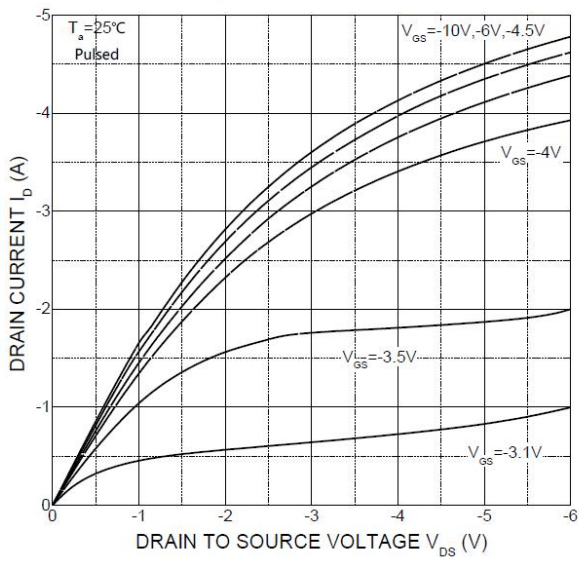
Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu\text{A}$	-100			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = -100V, V_{GS} = 0V$			-1	$\mu\text{A}$
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
<b>On Characteristics<sup>3</sup></b>						
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu\text{A}$	1.5	2.2	3.0	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -1.0A$		580	800	m $\Omega$
		$V_{GS} = -4.5V, I_D = -0.5A$		650	1000	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -40V, V_{GS} = 0V, f = 1\text{MHz}$		388		pF
Output Capacitance	$C_{oss}$			19		
Reverse Transfer Capacitance	$C_{rss}$			15		
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	$V_{DS} = -10V, V_{GS} = -10V, I_D = -1A$		3.2		nC
Gate-Source Charge	$Q_{gs}$			0.5		
Gate-Drain Charge	$Q_{gd}$			1.1		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = -10V, V_G = -10V, I_D = -1A$ $R_G = 2.5\Omega$		10		ns
Turn-on rise time	$t_r$			32		
Turn-off delay time	$t_{d(off)}$			28		
Turn-off fall time	$t_f$			9		
<b>Diode Characteristics</b>						
Diode forward current	$I_S$	$T_A = 25^{\circ}\text{C}$			-1	A
Diode pulsed forward currenta	$I_{SM}$				-4	A
Diode Forward voltage	$V_{DS}$	$V_{GS} = 0V, I_S = -1A$			-1.2	V

Notes :

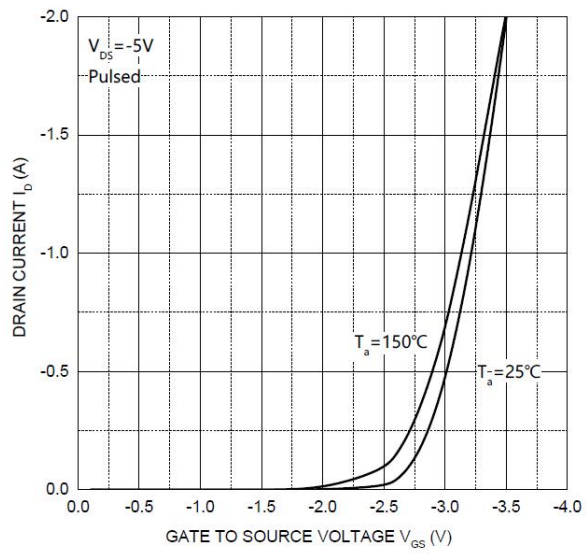
1.  $R_{\theta JA}$  is measured with the device mounted on 1 in<sup>2</sup> FR4 board with 1oz. single side copper, in a still air environment with  $T_A = 25^{\circ}\text{C}$ .
2.  $R_{\theta JA}$  is measured in the steady state.
3. Pulse test : Pulse width  $\leq 380\mu\text{s}$ , duty cycle  $\leq 2\%$ .

# Characteristics Curve

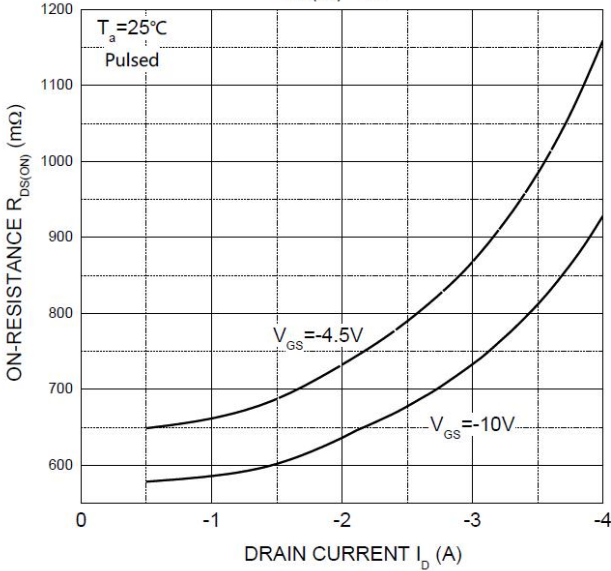
Output Characteristics



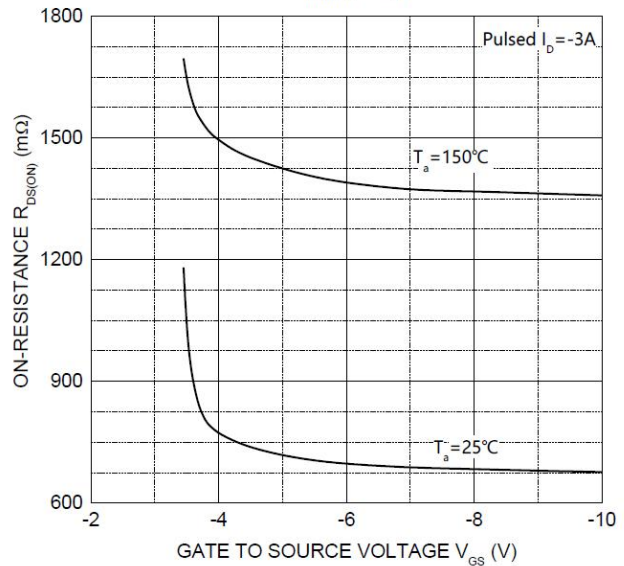
Transfer Characteristics



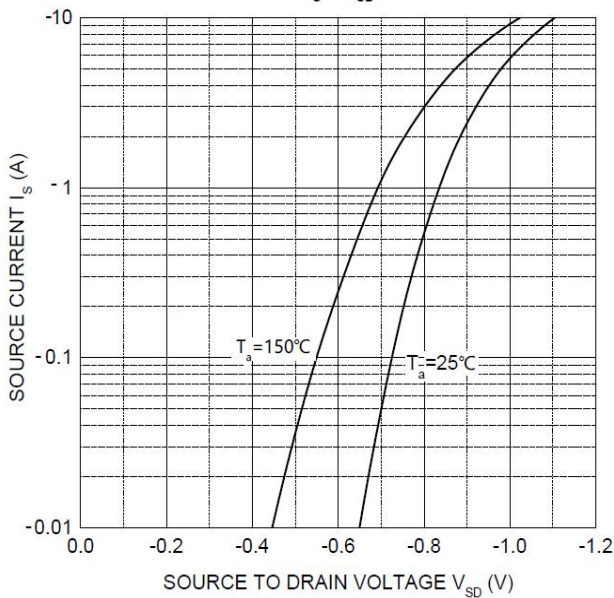
$R_{DS(ON)} - I_D$



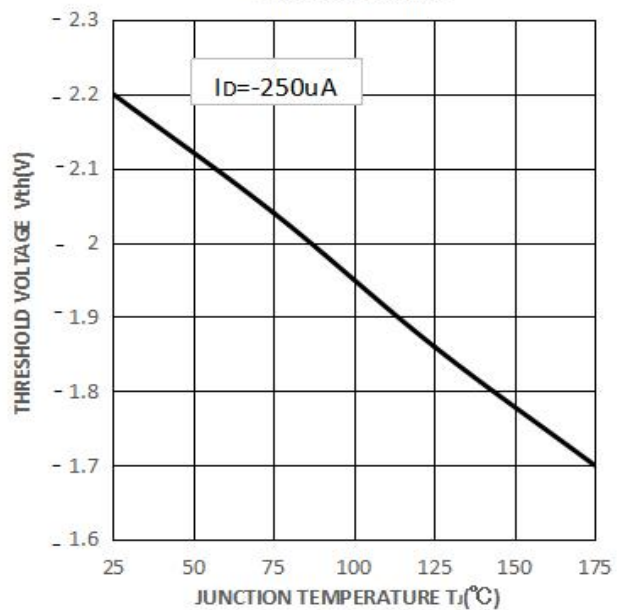
$R_{DS(ON)} - V_{GS}$



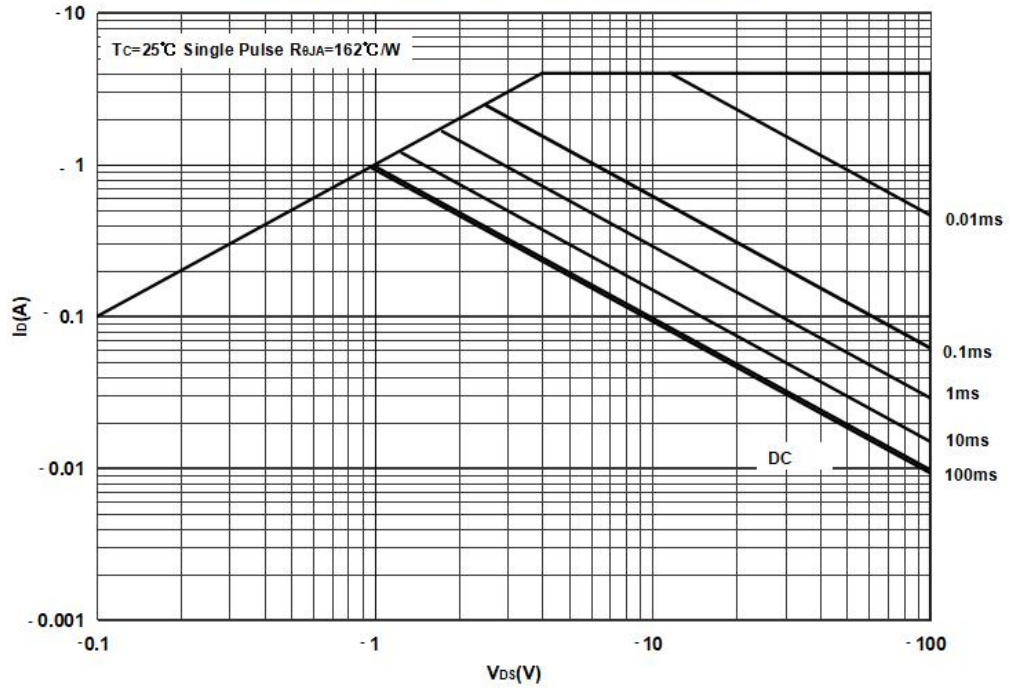
$I_S - V_{SD}$



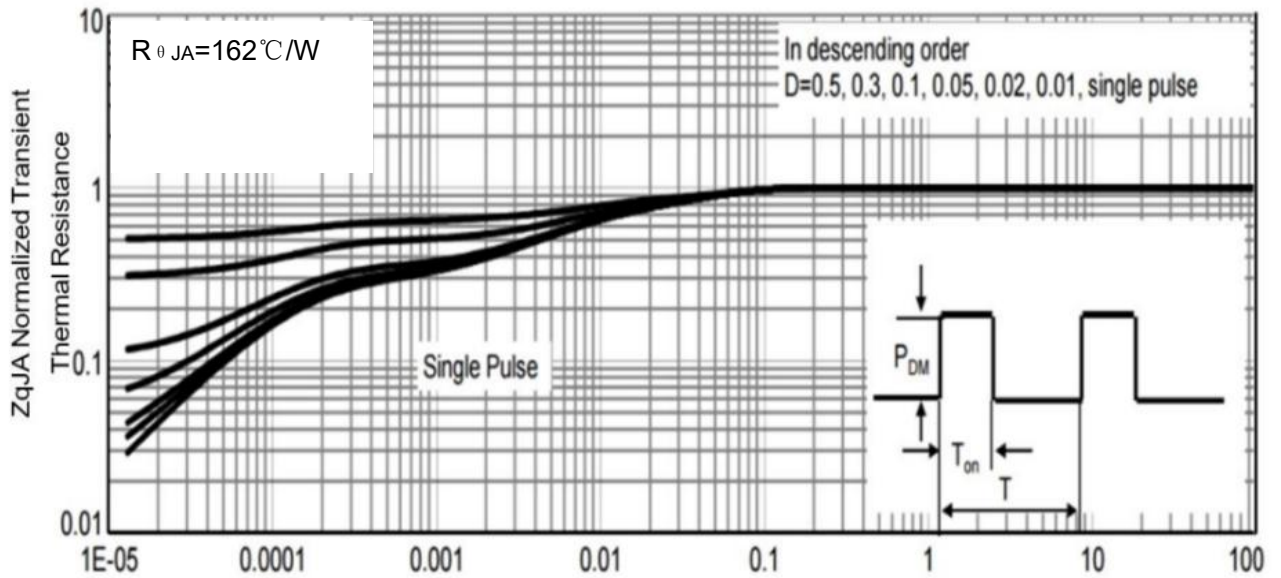
Threshold Voltage



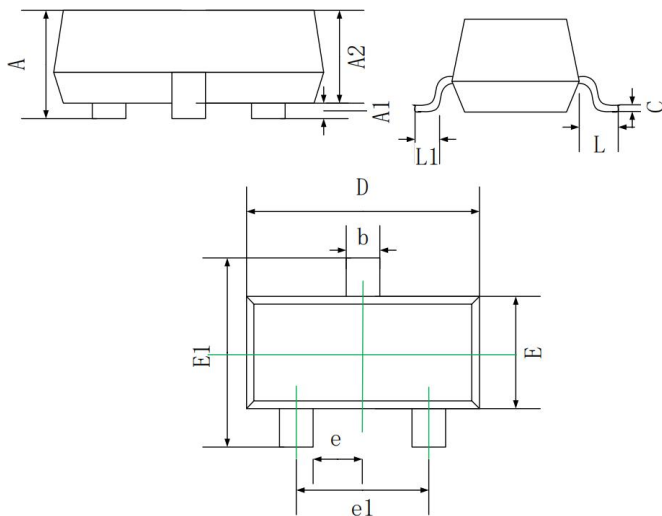
### Maximum Forward Biased Safe Operating Area



### Normalized Thermal Transient Impedance

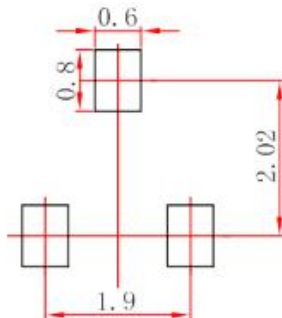


## SOT-23 Package Outline Dimensions



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	0.90	1.15
A1	0.00	0.10
A2	0.90	1.05
b	0.30	0.50
c	0.08	0.15
D	2.80	3.00
E	1.20	1.40
E1	2.25	2.55
e	0.95 REF.	
e1	1.80	2.00
L	0.55 REF.	
L1	0.30	0.50

## SOT-23 Suggested Pad Layout



Note:

1. Controlling dimension: in millimeters.
2. General tolerance:  $\pm 0.05\text{mm}$ .
3. The pad layout is for reference purposes only.

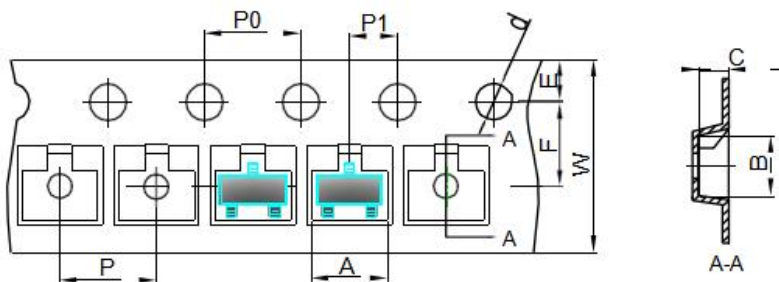
### NOTICE

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## SOT-23 Tape and reel

### SOT-23 Embossed Carrier Tape



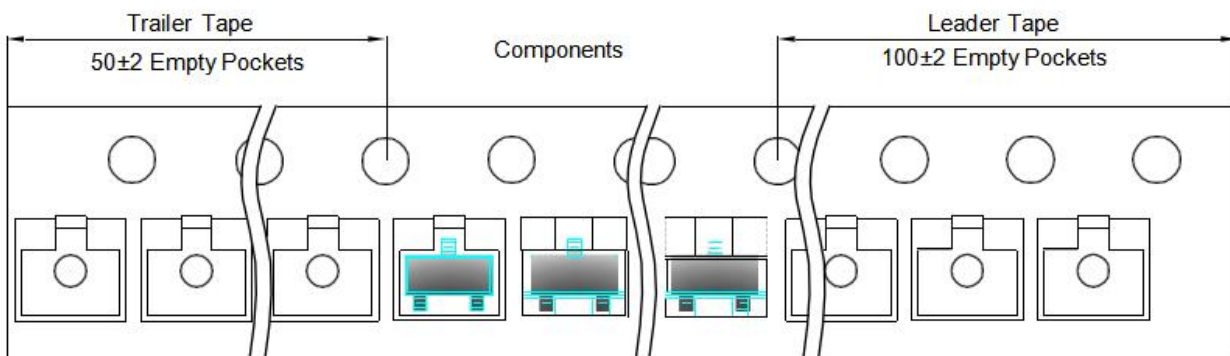
#### Packaging Description:

SOT-23 parts are shipped in tape. The carrier tape is made from a dissipative (carbon filled) polycarbonate resin. The cover tape is a multilayer film (Heat Activated Adhesive in nature) primarily composed of polyester film, adhesive layer, sealant, and anti-static sprayed agent. These reeled parts in standard option are shipped with 3,000 units per 7" or 17.8cm diameter reel. The reels are clear in color and is made of polystyrene plastic (anti-static coated).

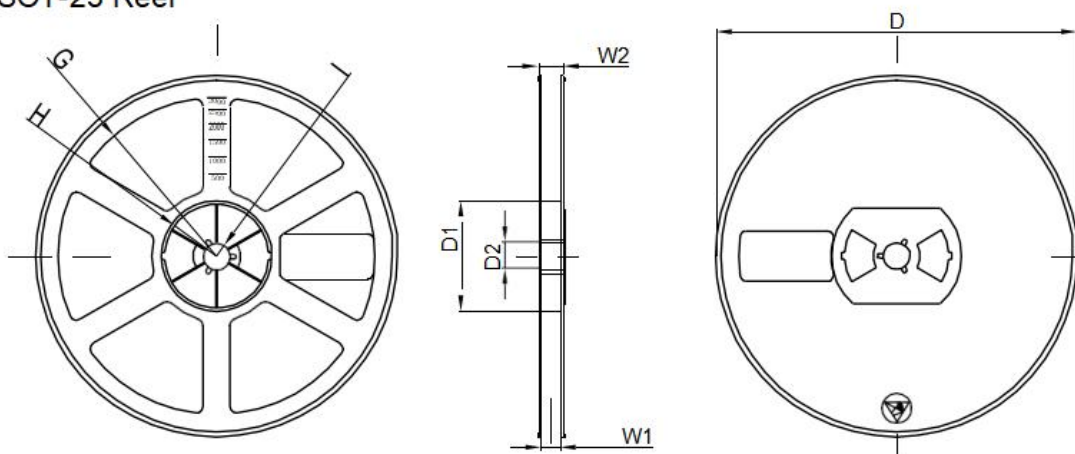
Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-23	3.15	2.77	1.22	Ø1.50	1.75	3.50	4.00	4.00	2.00	8.00

### SOT-23 Tape Leader and Trailer



### SOT-23 Reel



Dimensions are in millimeter

Reel Option	D	D1	D2	G	H	I	W1	W2
7"Dia	Ø178.00	54.40	13.00	R78.00	R25.60	R6.50	9.50	12.30

REEL	Reel Size	Box	Box Size(mm)	Carton	Carton Size(mm)	G.W.(kg)
3000 pcs	7 inch	30,000 pcs	203×203×195	120,000 pcs	438×438×220	

Date of change	Rev #	revise content
2023/03/07	A/0	/