

SuperMOS – SOT-23 -30V 155mΩ R_{DS(ON)}, P-channel MOSFET

1. Description

The CJ2303-ES uses advanced trench technology MOSFETs to provide excellent R_{DS(ON)} and low gate charge. The complementary MOSFETs may be used to form a level shifted high side switch, and for a host of other applications.

2. Features

- -30V, R_{DS(ON)}=155mΩ(Typ.) @V_{GS}=-10V
R_{DS(ON)}=265mΩ(Typ.) @V_{GS}=-4.5V
- Fast Switching
- High density cell design for low R_{DS(on)}
- Material: Halogen free
- Reliable and rugged
- Avalanche Rated
- Low leakage current

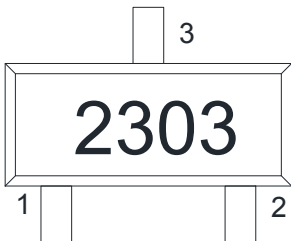
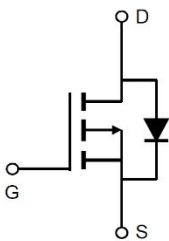
3. Applications

- PWM applications
- Load switch
- Power management in portable/desktop PCs
- DC/DC conversion

4. Ordering Information

Part Number	Package	Marking	Material	Packing	Quantity per reel	Flammability Rating	Reel Size
CJ2303-ES	SOT-23	2303	Halogen free	Tape & Reel	3,000 PCS	UL 94V-0	7inches

5. Pin Configuration and Functions

Pin	Function	Outline	Circuit Diagram
1	Gate		
2	Source		
3	Drain		

6. Specification

Absolute Maximum Rating & Thermal Characteristics

Ratings at 25 °C ambient temperature unless otherwise specified.

Parameter		Symbol	Limited	Unit
Drain-Source Voltage		BV_{DSS}	-30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_A=25^{\circ}C$	I_D	-1.5	A
	$T_A=100^{\circ}C$		-1.0	A
Maximum Power Dissipation	$T_A=25^{\circ}C$	P_D	0.8	W
Pulsed Drain Current		I_{DM}	-6.0	A
Operating Junction Temperature		T_J	150	°C
Storage Temperature Range		T_{stg}	-55 to +150	°C

Thermal resistance ratings

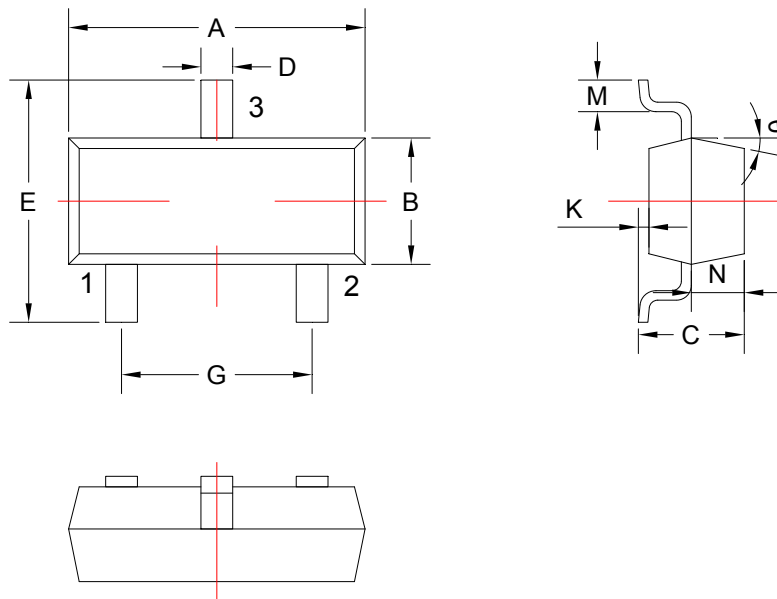
Parameter	Symbol	Typical	Maximum	Unit
Junction-to-Ambient Thermal Resistance	$R_{\theta JA}$		156	°C/W

Electrical Characteristics

At TA = 25°C unless otherwise specified

Parameter	Symbol	Test Conditions	Min.	Typ.	Max.	Unit
OFF CHARACTERISTICS						
Drain-to-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V, I_D=-250\mu A$	-30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{GS}=0V, V_{DS}=-30V$			-1	μA
Gate-to-source Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$			± 100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	$V_{GS}=V_{DS}, I_D=-250\mu A$	-1.2	-1.75	-2.3	V
Drain-to-source On-resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-1.5A$		155	178	m Ω
		$V_{GS}=-4.5V, I_D=-1.0A$		265	310	
CHARGES, CAPACITANCES AND GATE RESISTANCE						
Input Capacitance	C_{ISS}	$V_{GS}=0V, V_{DS}=-15V$ $f=1MHz$		95		pF
Output Capacitance	C_{OSS}			16		
Reverse Transfer Capacitance	C_{RSS}			13		
Total Gate Charge	$Q_{G(TOT)}$	$V_{GS}=-10V, V_{DS}=-15V$ $I_D=-2A$		1.6		nC
Gate-to-Source Charge	Q_{GS}			0.4		
Gate-to-Drain Charge	Q_{GD}			0.47		
SWITCHING CHARACTERISTICS						
Turn-On Delay Time	$t_{d(ON)}$	$V_{GS}=-10V, V_{DS}=-15V$ $I_D=-1A, R_G=3\Omega$		9		ns
Rise Time	t_r			20		
Turn-Off Delay Time	$t_{d(OFF)}$			45		
Fall Time	t_f			40		
BODY DIODE CHARACTERISTICS						
Forward Voltage	V_{SD}	$V_{GS}=0V, I_{SD}=-1A$	-0.45		-1.5	V

7. Dimension (SOT-23)



COMMON DIMENSIONS CUNITS MEASURE=MILLIMETER					
SYMBOL	MIN	MAX	SYMBOL	MIN	MAX
A	2.85	3.04	G	1.80	2.00
B	1.20	1.40	K	0	0.10
C	0.90	1.10	M	0.20	-
D	0.40	0.50	N	0.50	0.70
E	2.25	2.55	θ	5°	9°

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