preliminary

CMC22103NE-23

25V N-Channel MOSFET

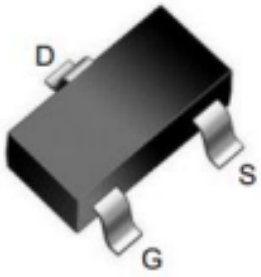
Features

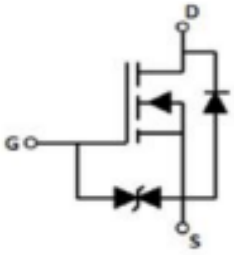
- Highly ESD protected gate, typical 6kV (HBM)
- Trench Power LV MOSFET technology
- Voltage controlled small signal switch
- Low input Capacitance
- Fast switching speed
- Low input / Output Leakage

Product Summary

Item	Typical Value	Unit
V_{DS}	25	V
$R_{DS(on)}$ @ V_{GS} =4.5V (Max)	400	mΩ
I_D	0.9	A

SOT23S Pin Description





Absolute Ratings (T_A = 25℃ unless otherwise noted)

Parameter	Symbol	Value	Units
Drain-Source Voltage	V_{DS}	25	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current, T_C = 25°C	I_D	0.9	A
Total Power Dissipation	P_D	0.85	W
Electrostatic Discharge Rating Human Body Model	ESD	6.0	kV
Junction Temperature Maximum	T_{JMAX}	155	°C
Storage Temperature	$T_{Storage}$	-50 to 155	°C

Thermal Characteristics

Parameter	Symbol	Value	Units
Thermal Resistance Junction-Ambient	$R_{\theta JA}$	357	°C/W

Electrical Characteristics

Static (T_J=25℃ unless otherwise specified)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	25	---	---	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 25V, V_{GS} = 0V	---	---	1	uA
Gate-Body Leakage Current	I_{GSS}	V_{GS} = ±12V, V_{DS} = 0V	---	---	±10	uA
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 0.5A	---	---	400	mΩ
		V_{GS} = 2.7V, I_D = 0.5A	---	---	570	
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250uA	0.6	---	1.5	V
Diode Forward Voltage	V_{SD}	I_S = 0.1A, V_{GS} = 0V	---	---	1.2	V

Dynamic (T_J=25℃ unless otherwise specified)						
Parameter	**Symbol**	**Test Conditions**	**Min.**	**Typ.**	**Max.**	**Units**
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz	---	50	---	pF
Output Capacitance	C_{oss}		---	16	---	
Reverse Transfer Capacitance	C_{rss}		---	11	---	
Total Gate Charge	Q_g	V_{DS} = 25V, I_D = 0.3A, V_{GS} = 10V	---	2.5	---	nC
Gate-Source Charge	Q_{gs}		---	1.1	---	
Gate-Drain Charge	Q_{gd}		---	0.35	---	
Turn-on delay time	$T_{d(on)}$	V_{DS} = 25V, I_D = 0.2A, V_{GS} = 4.5V, R_G=10Ω	---	35	---	nS
Rise time	T_r		---	61	---	
Turn-off delay time	$T_{d(off)}$		---	55	---	
Fall time	T_f		---	35	---	

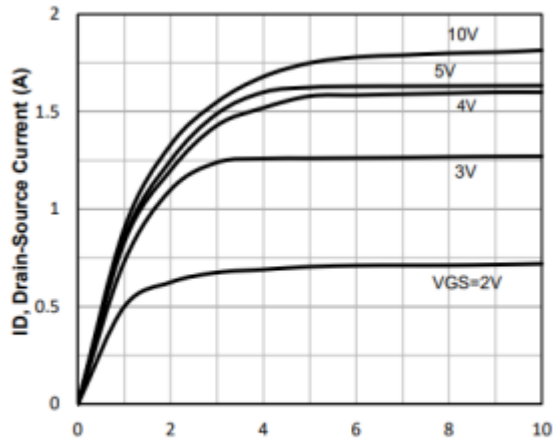


Fig1. Typical Output Characteristics

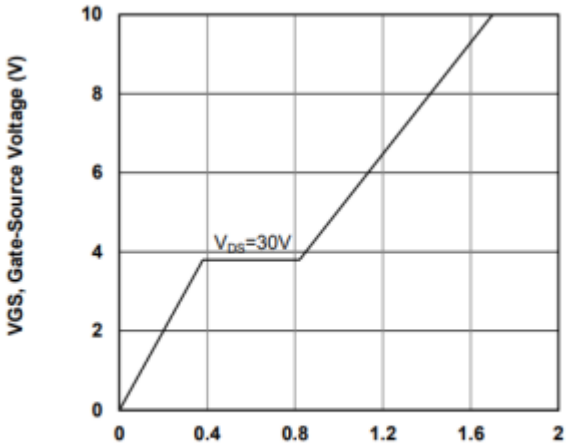


Fig2. Typical Gate Charge Vs.Gate-Source Voltage

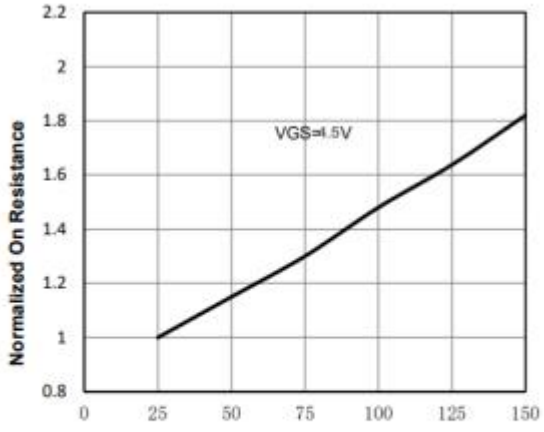


Fig3. Normalized On-Resistance Vs. Temperature

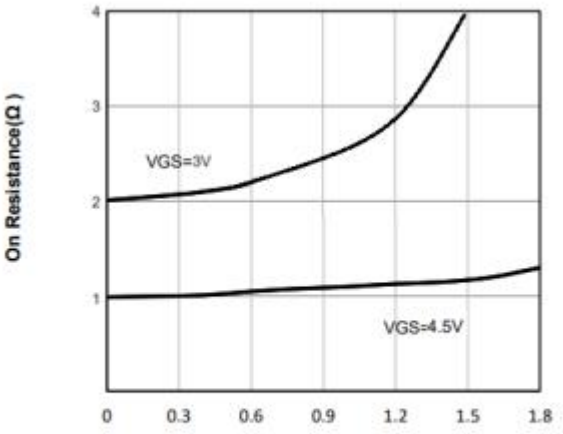


Fig4. On-Resistance Vs. Drain-Source Current

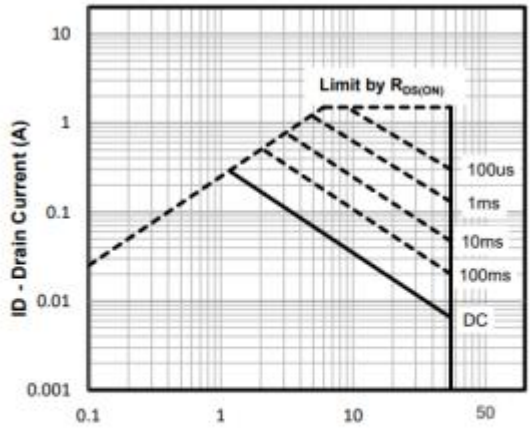


Fig5. Maximum Safe Operating Area

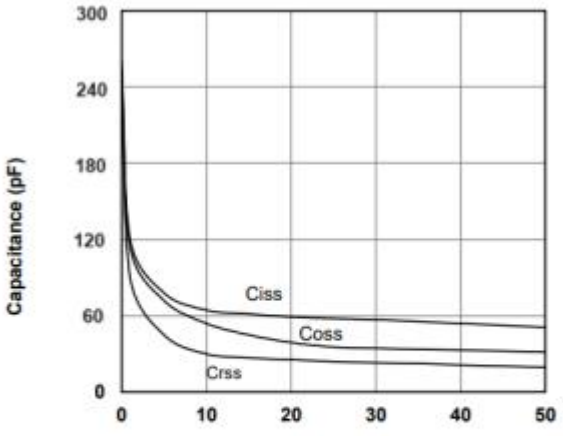
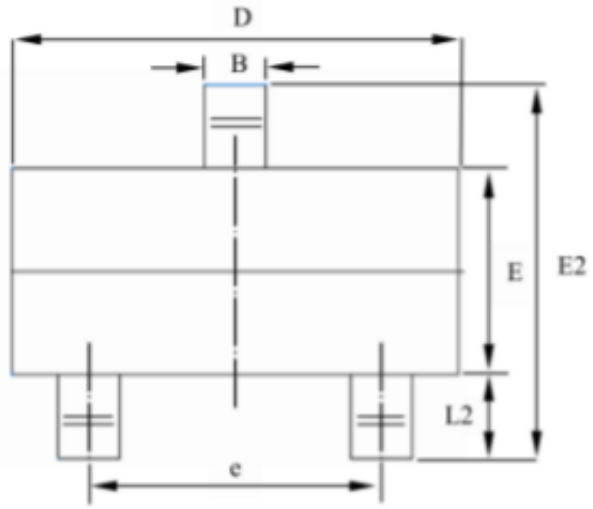
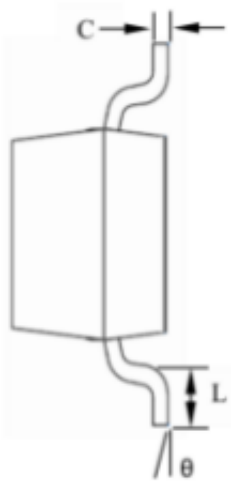
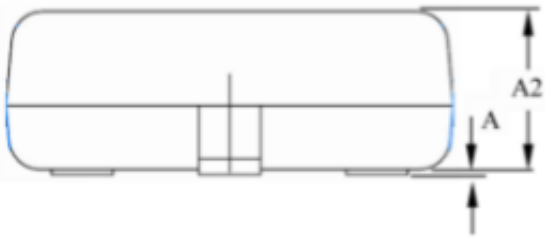


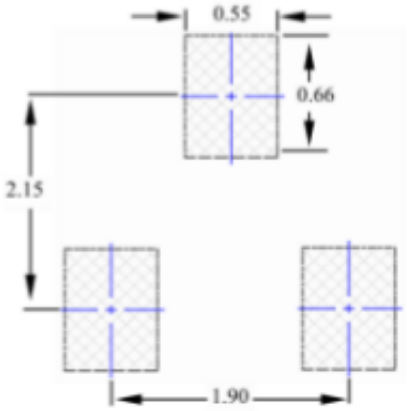
Fig6 Typical Capacitance Vs.Drain-Source Voltage

SOT23S Package Outline Dimensions









LAND PATTERN RECOMMENDATION

SYMBOLS	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.00	--	0.10	0.000	--	0.004
A2	0.90	--	1.10	0.035	--	0.041
B	0.30	--	0.50	0.012	--	0.020
C	0.08	--	0.15	0.003	--	0.006
D	2.80	--	3.00	0.110	--	0.118
E	1.20	--	1.40	0.047	--	0.055
E2	2.25	--	2.55	0.089	--	0.100
L	0.30	--	0.50	0.012	--	0.020
L2	0.50	--	0.60	0.020	--	0.024
θ	0°	--	8°	0°	--	8°
e	1.80	--	2.00	0.071	--	0.079