

N-Channel Enhancement Mode MOSFET

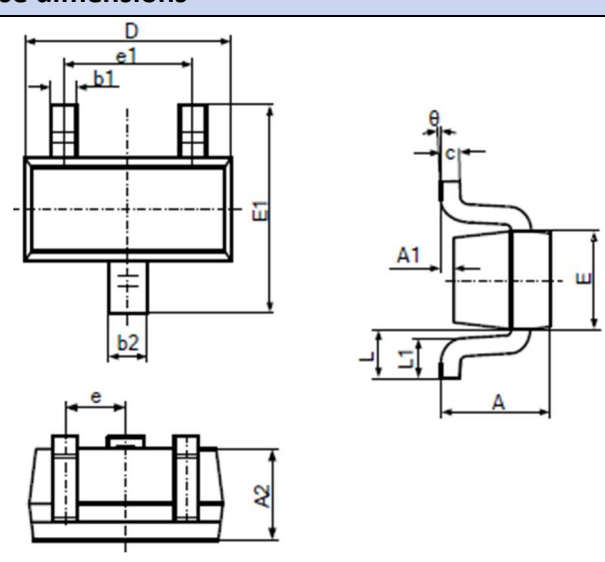
Primary characteristics			
Symbol	Parameter	Value	Unit
I_D	Continuous drain current (@ $T_C=25^\circ\text{C}$)	200	A
V_{DS}	Drain source voltage	50	V
$R_{DS(on)max}(@V_{GS}=4.5V)$	Static drain-source on-resistance	2.5 Typ. 1.2	Ω

Features

- **SC-89** case for easy automatic insertion
- Pb-free and **RoHS** compliant
- High density cell design for Low RDS(on)
- Voltage controlled small signal switch
- High saturation current capability
- ESD protected Gate HBM 2.0KV

Application

- Load/Power Switching
- Interfacing Switching
- DC-DC Converters
- Power management functions
- Analog Switch

Case dimensions	
	
SC-89	

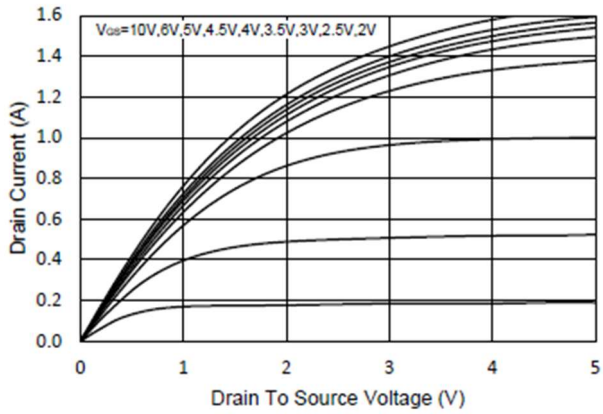
Unit	A	A1	A2	b1	b2	c	D
mm	0.700- 0.900	0.000- 0.100	0.700- 0.800	0.150- 0.250	0.250- 0.325	0.100- 0.200	1.500- 1.700
Unit	E	E1	e	e1	L	L1	θ
mm	0.750- 0.850	1.450- 1.750	0.950 BSC	0.900- 1.100	0.300- 0.500	0.028- 0.440	0-8°

Maximum ratings ($T_C = 25^\circ\text{C}$)			
Characteristics	Symbol	Value	Unit
Drain-source voltage	V_{DS}	50	V
Gate-source voltage	V_{GS}	± 8	V
Continuous drain current @ $T_C=25^\circ\text{C}$	I_D	200	mA
Pulsed drain current	I_{DM}	800	mA
Power Dissipation @ $T_C=25^\circ\text{C}$	P_D	150	mW
Operating junction temperature range	T_J, T_{STG}	-55 ~ 150	$^\circ\text{C}$
Thermal resistance junction-ambient	$R_{\theta JA}$	556	$^\circ\text{C/W}$

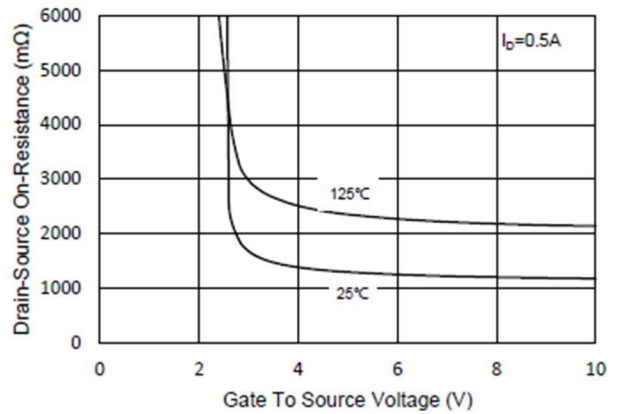
Maximum ratings (T _c = 25°C)						
Characteristics	Test condition	Symbol	Value			Unit
			Min.	Typ.	Max.	
Drain-source breakdown voltage	V _{GS} =0V, I _D =250μA	BV _{DSS}	50	-	-	V
Static drain-source on-resistance	V _{GS} =10V, I _D =0.5A	R _{DS(ON)}	-	1.1	1.6	Ω
	V _{GS} =4.5V, I _D =0.2A		-	1.2	2.5	
Gate-threshold voltage	V _{DS} =V _{GS} , I _D =250μA	V _{GS(th)}	0.5	1.0	1.5	V
Drain-source leakage current	V _{DS} =50V, V _{GS} =0V, T _J =25°C	I _{DSS}	-	-	1	μA
Gate-source leakage current	V _{GS} =±20V, V _{DS} =0V	I _{GSS}	-	-	±10	μA
Forward transconductance	V _{DS} =10V, I _D =0.2A	g _{FS}	-	510	-	mS
Gate resistance	f=1MHz	R _g	-	75	-	Ω
Total gate charge	V _{DS} =25V V _{GS} =10V I _D =0.5A	Q _g	-	1.2	-	nC
Gate-source charge		Q _{gs}	-	0.15	-	
Gate-drain charge		Q _{gd}	-	0.31	-	
Turn-on delay time	V _{DD} =25V V _{GS} =10V R _G =25Ω I _D =0.5A	T _{d(on)}	-	3.0	-	ns
Rise time		T _r	-	2.7	-	
Turn-off delay time		t _{d(OFF)}	-	11	-	
Fall time		t _f	-	8.1	-	
Input capacitance	V _{DS} =25V V _{GS} =0V f=1.0MHz	C _{iss}	-	29	-	pF
Output capacitance		C _{oss}	-	4.3	-	
Reverse transfer capacitance		C _{rss}	-	2.7	-	
Continuous source current	V _G =V _D =0V, force current	I _S	-	-	0.25	A
Diode forward voltage	V _{GS} =0V, I _S =0.2A,	V _{SD}	-	-	1.3	V
Reverse recovery time	I _F =0.5A, di/dt=100A/μs	t _{rr}	-	9.2	-	ns
Reverse recovery charge		Q _{rr}	-	2.1	-	nC

Typical characteristics

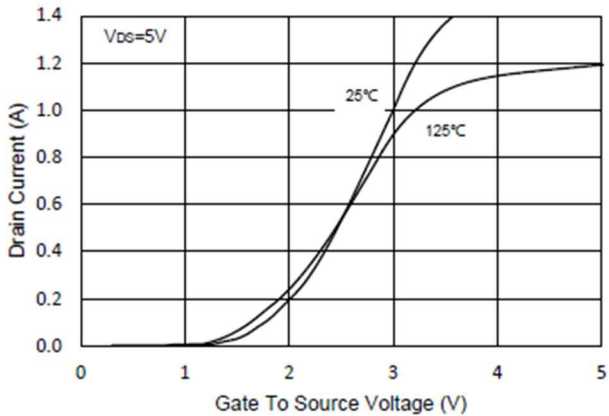
Typical output characteristics



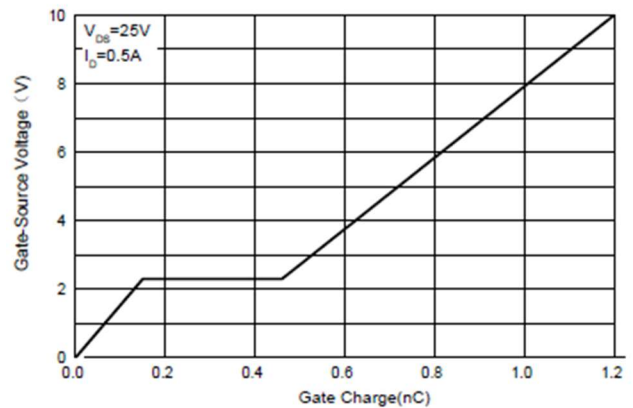
On-resistance vs. gate-source



Transfer characteristics

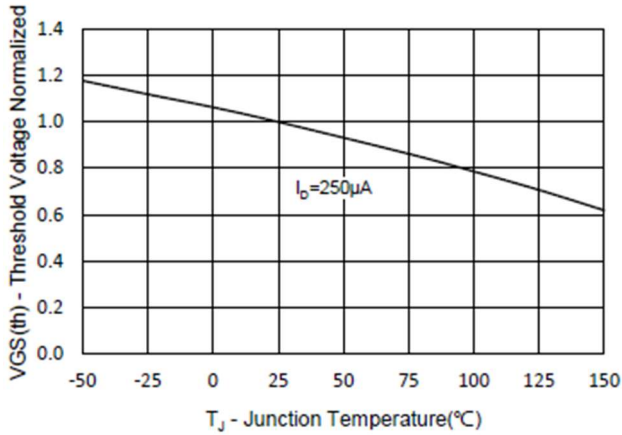


Gate-charge characteristics

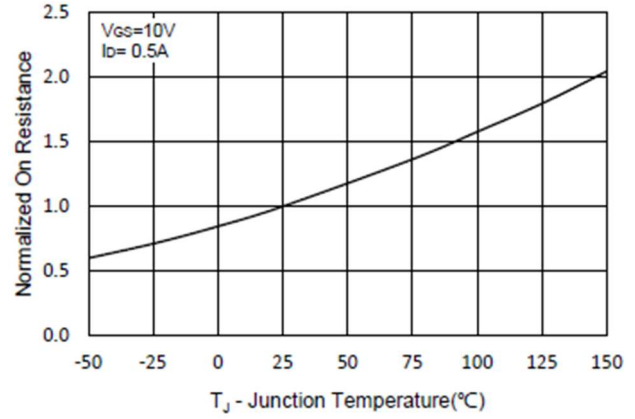


Typical characteristics

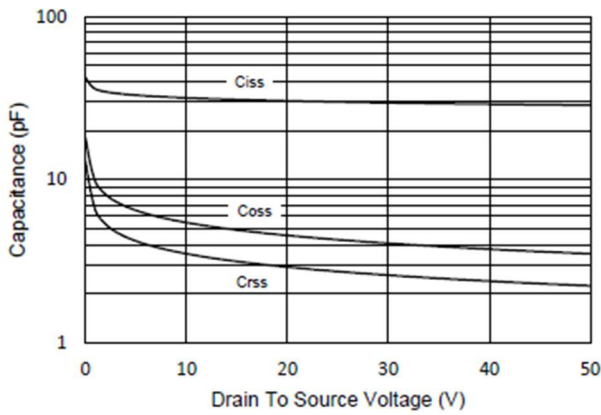
Normalized Threshold Voltage



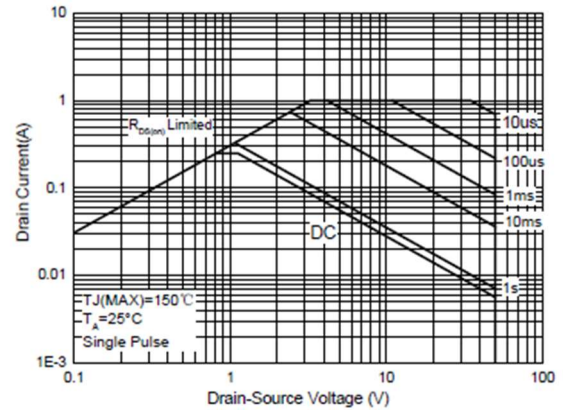
Normalized R_{DS(on)} vs. T_j



Capacitance

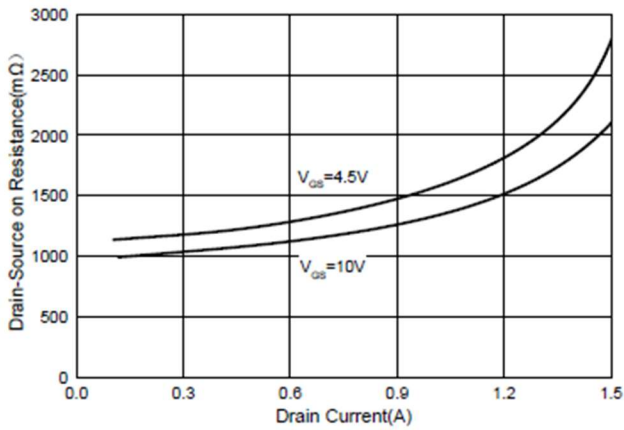


Safe operating area

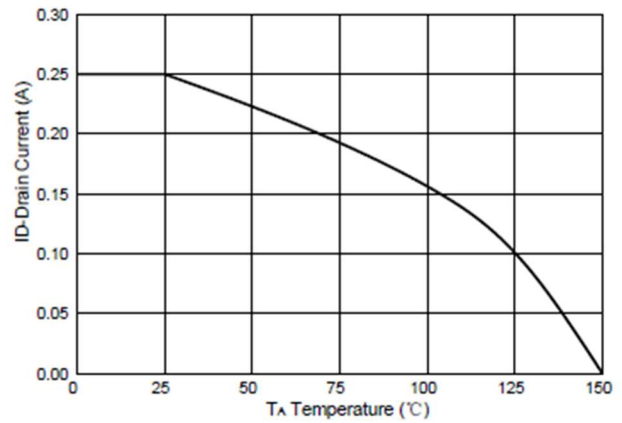


Typical characteristics

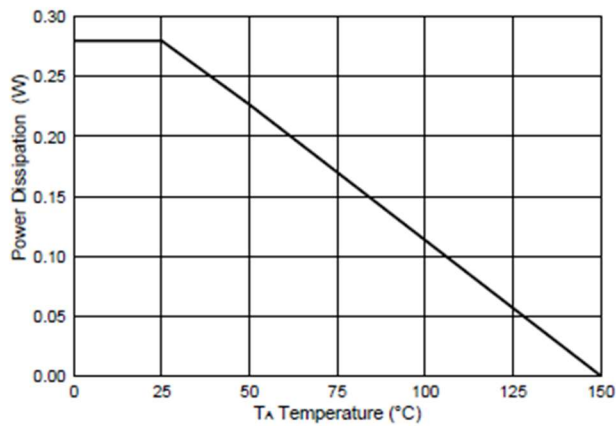
R_{DS(on)} VS. I_D



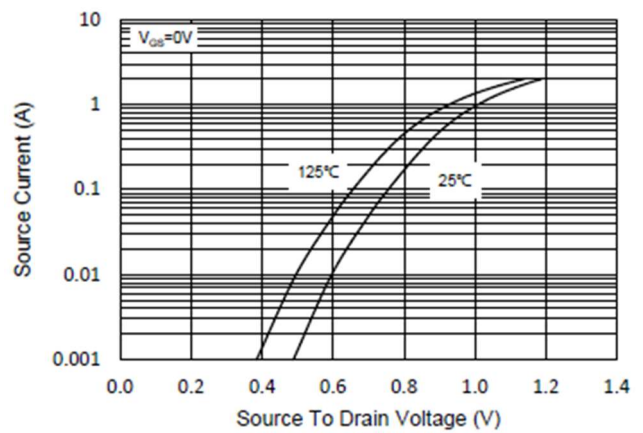
Drain Current



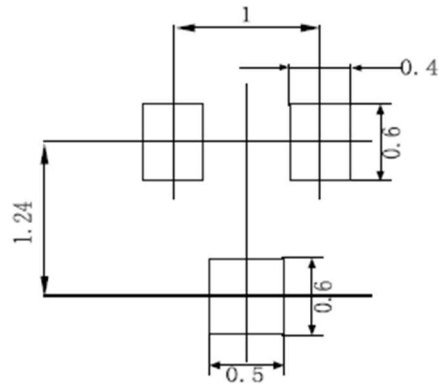
PD Dissipation



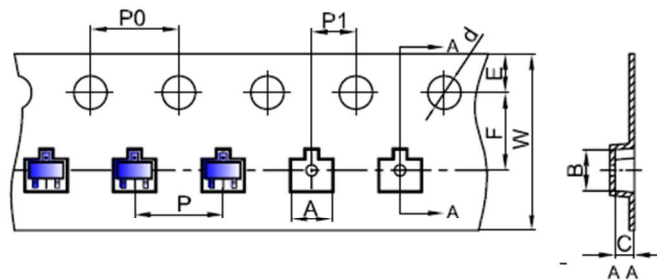
Safe Operation Area



Pad dimensions



Packing type



Dimensions are in millimeter

Pkg type	A	B	C	d	E	F	P0	P	P1	W
SOT-523	1.85	1.85	0.875	Ø1,50	1.75	3.50	4.00	4.00	2.00	8.00
(Tolerance)	+/-0.05	+/-0.05	+/-0.05	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+/-0.1	+0.3/-0.1

Ordering information			
Part Number	Package	Shipping Quantity	Dimensions
CFX138KT	SC-89	3000 pcs / reel	---

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