

SOT-23

Pin Definition:

1. Gate
2. Source
3. Drain

PRODUCT SUMMARY

V_{DS} (V)	R_{DS(on)}(Ω)(max)	I_D (A)
600	700 @ V _{GS} = 0V	0.03

Features

- Depletion Mode
- Low Gate Charge

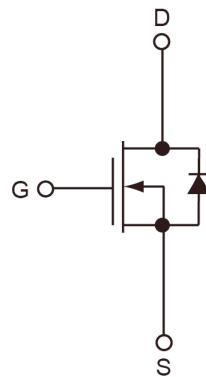
Application

- Converters
- Telecom

Ordering Information

Part No.	Package	Packing
TSM126CX RFG	SOT-23	3kpcs / 7" Reel

Note: "G" denotes Halogen Free Product.

Block Diagram

N-Channel MOSFET
Absolute Maximum Ratings (Ta = 25°C unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V _{DS}	600	V
Gate-Source Voltage	V _{GS}	±20	V
Continuous Drain Current	T _c =25°C	I _D	A
Continuous Drain Current		0.030	A
Pulsed Drain Current ^a	I _{DM}	0.024	A
Maximum Power Dissipation	P _D	0.120	W
Soldering Temperature ^b	T _L	300	°C
Operating Junction Temperature	T _J	+150	°C
Operating Junction and Storage Temperature Range	T _J , T _{STG}	-55 to +150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance, Junction to Ambient	R _{θ_{JA}}	250	°C/W

Notes:

- a. Pulse width limited by the Maximum junction temperature
- b. Distance of 1.6mm from case for 10 seconds.

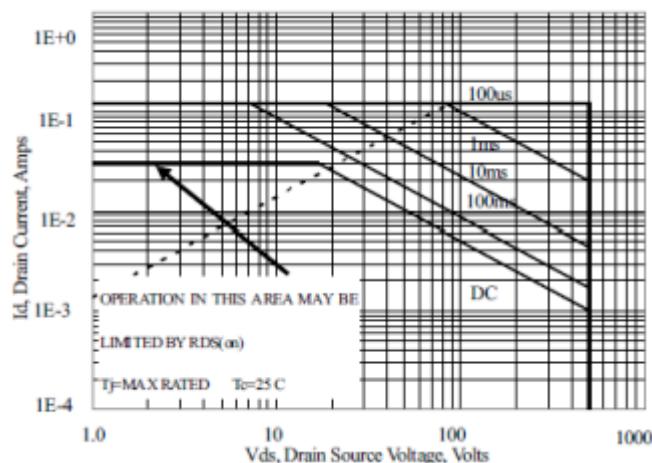
Electrical Specifications ($T_j = 25^\circ\text{C}$ unless otherwise noted)

Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static^a						
Drain-Source Breakdown Voltage	$V_{GS} = -5\text{V}$, $I_D = 250\mu\text{A}$	BV_{DSS}	600	--	--	V
Gate Threshold Voltage	$V_{DS} = 3\text{V}$, $I_D = 8\mu\text{A}$	$V_{GS(\text{TH})}$	-2.7	-1.8	-1.0	V
Drain-Source cutoff current	$V_{DS} = 600\text{V}$, $V_{GS} = -5\text{V}$, $T_a = 25^\circ\text{C}$	$I_{DS(\text{OFF})}$	--	--	0.1	μA
Drain-Source cutoff current	$V_{DS} = 480\text{V}$, $V_{GS} = -5\text{V}$, $T_a = 125^\circ\text{C}$				10	μA
Gate-Source Leakage Current	$V_{GS} = \pm 20\text{V}$, $V_{DS} = 0\text{V}$	I_{GSS}	--	--	± 10	μA
On-state Drain Current	$V_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$	I_{DSS}	12	--	--	mA
Drain-Source On-State Resistance	$V_{GS} = 0\text{V}$, $I_D = 3\text{mA}$	$R_{DS(\text{ON})}$	--	350	700	Ω
	$V_{GS} = 10\text{V}$, $I_D = 16\text{mA}$			400	800	Ω
Forward Transconductance	$ V_{DS} > 2 I_D * R_{DS(\text{ON})\text{max}}$, $I_D = 0.01\text{A}$	g_{fs}	0.008	0.017	--	S
Dynamic						
Input Capacitance	$V_{DS} = 25\text{V}$, $V_{GS} = -5\text{V}$, $f = 1.0\text{MHz}$	C_{iss}	--	51.42	--	pF
Output Capacitance		C_{oss}	--	4.48	--	
Reverse Transfer Capacitance		C_{rss}	--	1.12	--	
Total Gate Charge	$V_{DS} = 400\text{V}$, $I_D = 0.01\text{A}$, $V_{GS} = -5\text{V}$ to 5V	Q_g	--	1.18	--	nC
Gate-Source Charge		Q_{gs}	--	0.49	--	
Gate-Drain Charge		Q_{gd}	--	0.365	--	
Switching						
Turn-On Delay Time	$V_{DD} = 300\text{V}$, $I_D = 0.01\text{A}$, $V_{GS} = -5\text{V}$ to 7V , $R_G = 6\Omega$	$t_{d(on)}$	--	10.01	--	ns
Turn-On Rise Time		t_r	--	55.7	--	
Turn-Off Delay Time		$t_{d(off)}$	--	57.2	--	
Turn-Off Fall Time		t_f	--	135.5	--	
Source-Drain Diode						
Diode forward Current	Continuous	I_S	--	--	0.025	A
Diode Pulse Current		I_{SM}	--	--	0.100	A
Diode Forward Voltage	$I_{SD} = 16\text{mA}$, $V_{GS} = -5\text{V}$	V_{SD}	--	--	1.2	V
Reverse Recovery Time	$I_F = 0.01\text{A}$, $V_{GS} = -10\text{V}$ $dI_F/dt = 100\text{A}/\mu\text{s}$, $V_R = 30\text{V}$	t_{rr}	--	243.1	--	ns
Reverse Recovery Charge		Q_{rr}	--	639	--	nC

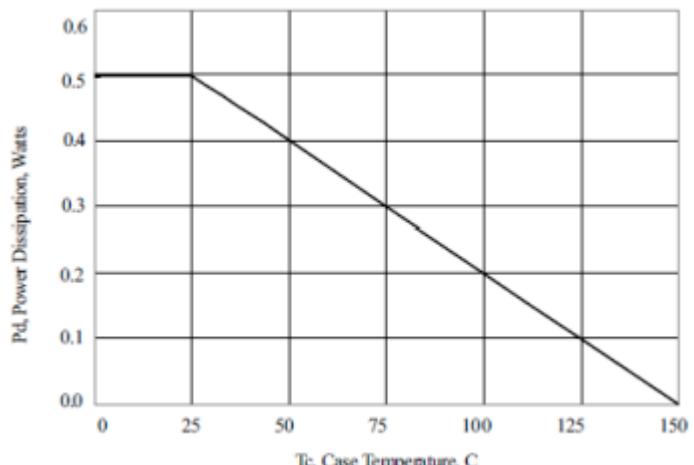
Notes:a. pulse test: $PW < 380\mu\text{s}$, duty cycle $< 2\%$

Electrical Characteristics Curves ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Maximum Forward Bias Safe Operation Area

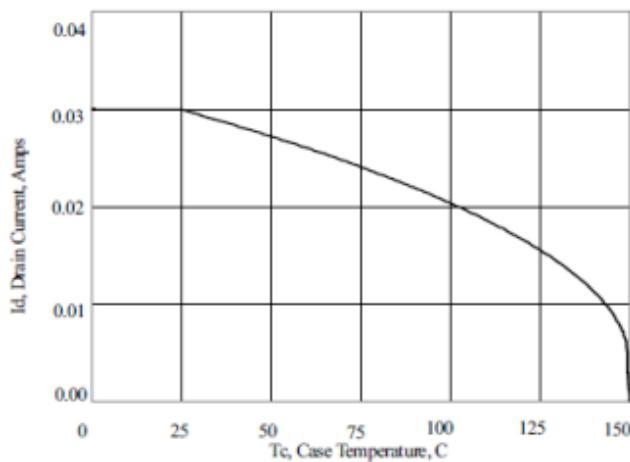


Maximum Power Dissipation vs. Case Temperature

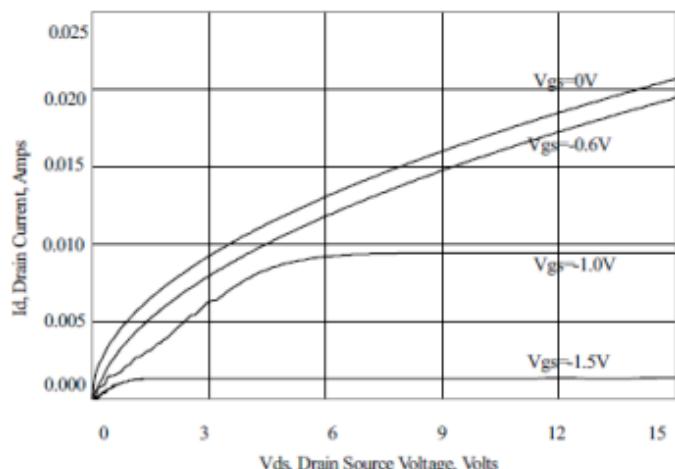


Maximum Continuous Drain Current vs.

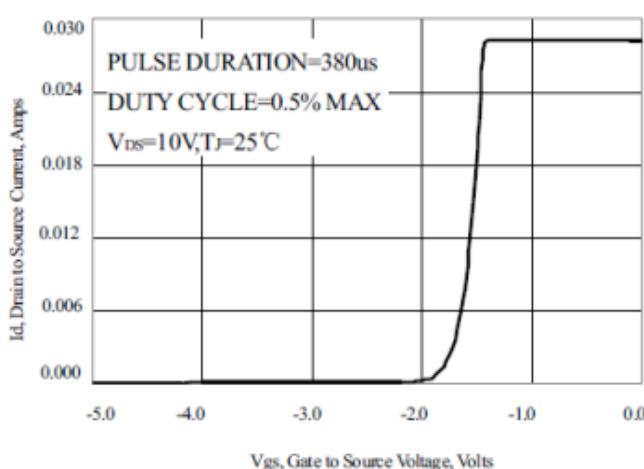
Case Temperature



Typical Output Characteristics

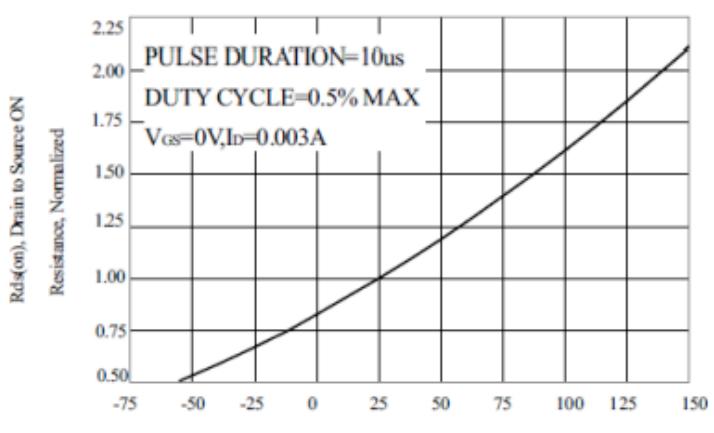


Typical Transfer Characteristics



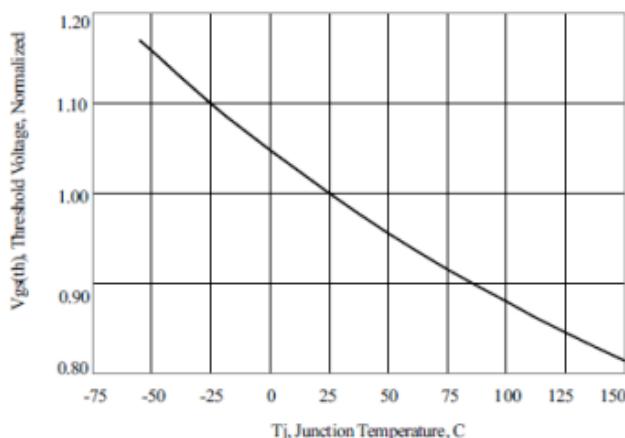
Drain to Source ON Resistance

vs. Junction Temperature

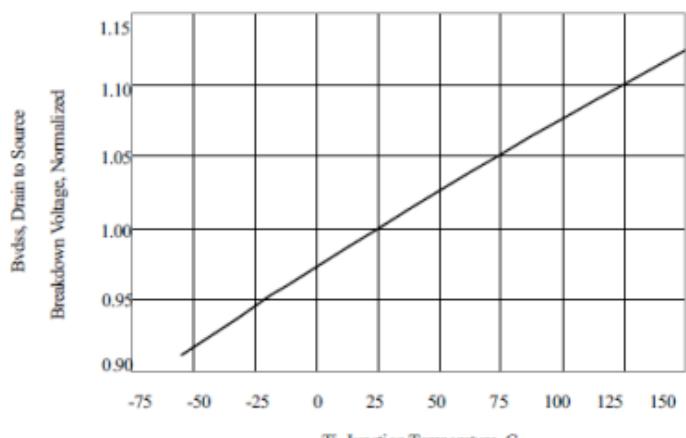


Electrical Characteristics Curves ($T_a = 25^\circ\text{C}$, unless otherwise noted)

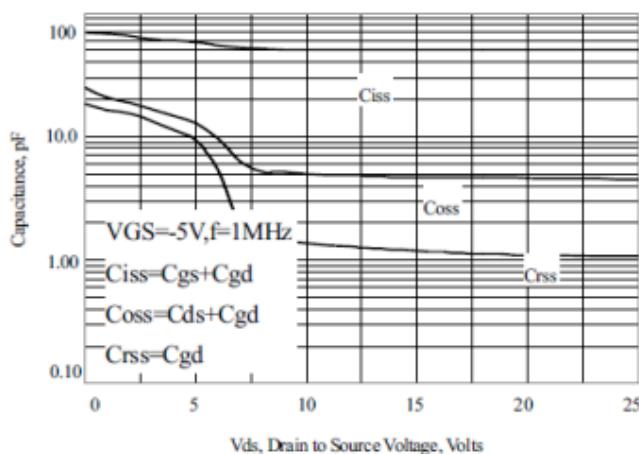
Threshold Voltage vs. Junction Temperature



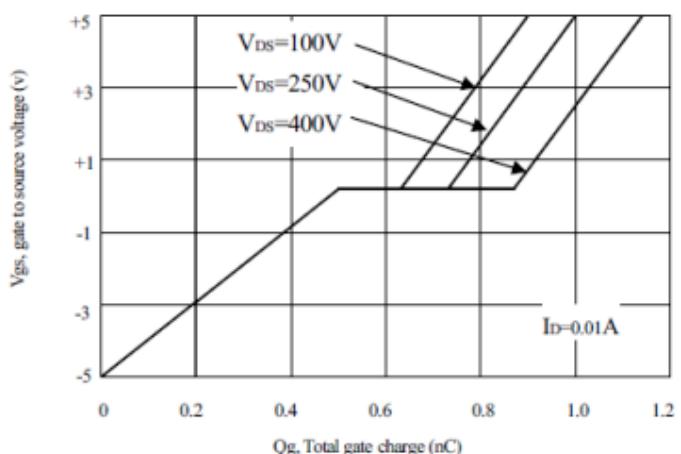
Breakdown Voltage vs. Junction Temperature



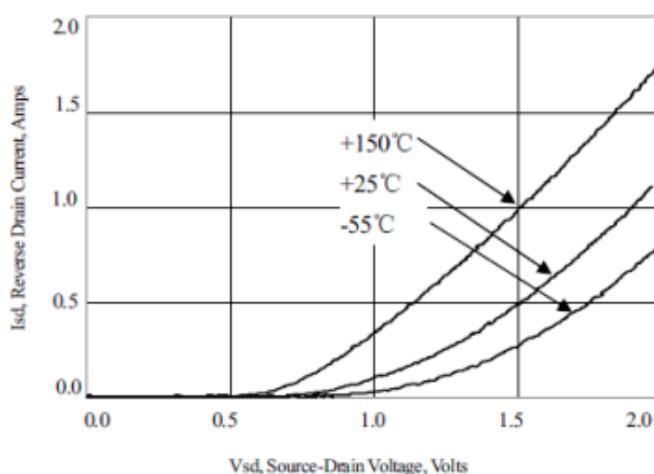
Typical Capacitance vs. Drain to source Voltage



Typical Gate Charge vs. Gate to Source Voltage

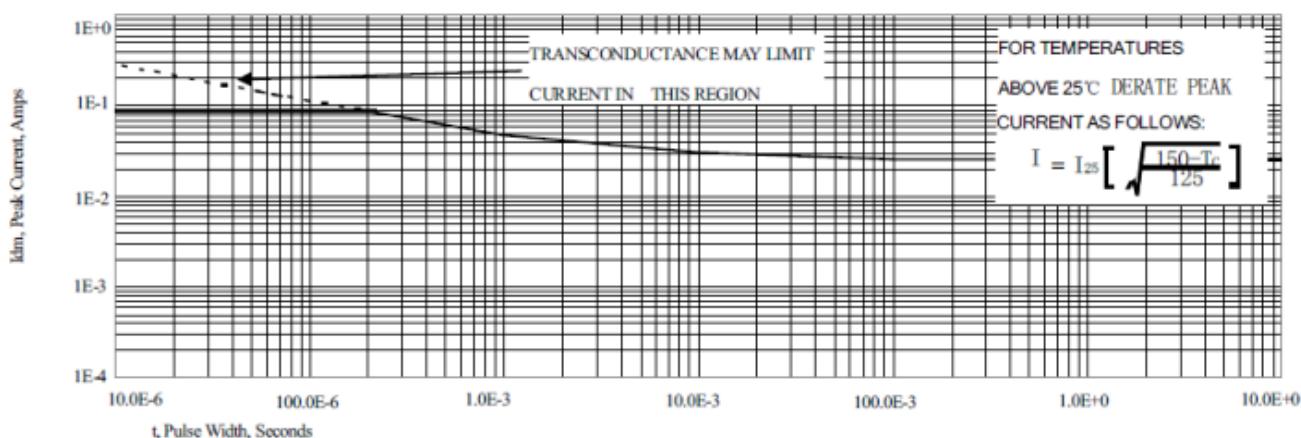


Typical Body Diode Transfer Characteristics

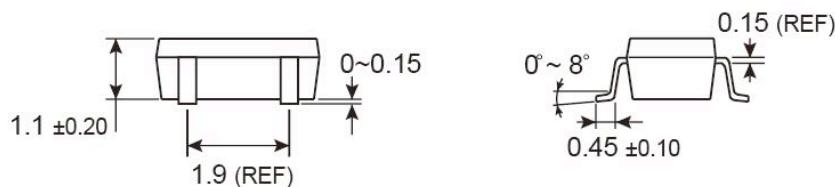
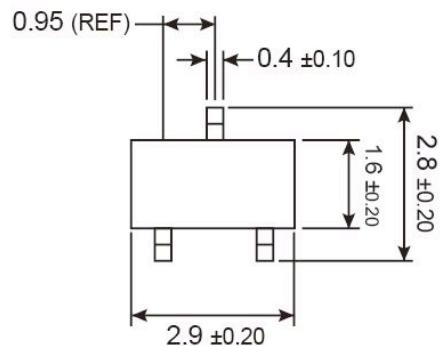


Electrical Characteristics Curves ($T_a = 25^\circ\text{C}$, unless otherwise noted)

Maximum Peak Current Capability



SOT-23 Mechanical Drawing



Unit: Millimeters

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- Поставка образцов и прототипов;
- Техническая поддержка проекта;
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