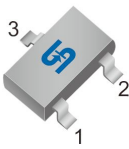


SOT-23



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

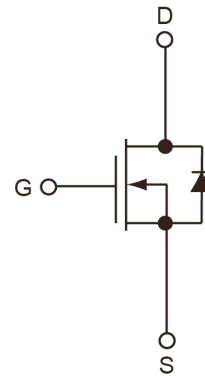
- Converters
- Telecom

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	I_D	0.030	A
Continuous Drain Current		0.024	A
Pulsed Drain Current ^a	I_{DM}	0.120	A
Maximum Power Dissipation	P_D	0.5	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	$R\theta_{JA}$	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)

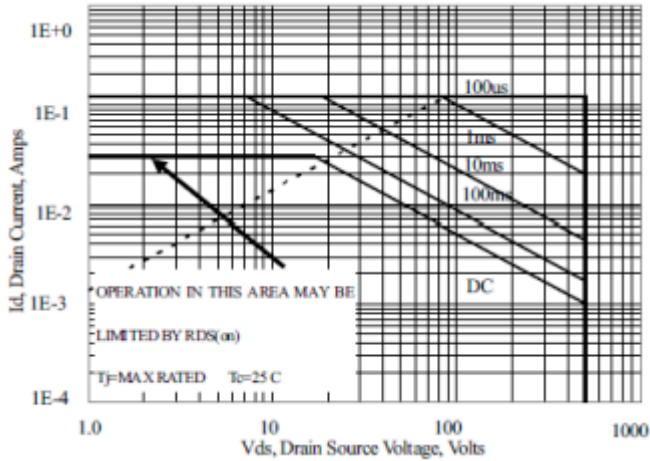
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static ^a						
Drain-Source Breakdown Voltage	V _{GS} = -5V, I _D = 250μA	BV _{DSS}	600	--	--	V
Gate Threshold Voltage	V _{DS} = 3V, I _D = 8μA	V _{GS(TH)}	-2.7	-1.8	-1.0	V
Drain-Source cutoff current	V _{DS} = 600V, V _{GS} = -5V, Ta = 25°C	I _{DS(OFF)}	--	--	0.1	μA
Drain-Source cutoff current	V _{DS} = 480V, V _{GS} = -5V, Ta = 125°C				10	μA
Gate-Source Leakage Current	V _{GS} = ±20V, V _{DS} = 0V	I _{GSS}	--	--	±10	μA
On-state Drain Current	V _{DS} = 25V, V _{GS} = 0V	I _{DSS}	12	--	--	mA
Drain-Source On-State Resistance	V _{GS} = 0V, I _D = 3mA	R _{DS(ON)}	--	350	700	Ω
	V _{GS} = 10V, I _D = 16mA			400	800	Ω
Forward Transconductance	V _{DS} >2 I _D *R _{DS(ON)} max, I _D = 0.01A	g _{fs}	0.008	0.017	--	S
Dynamic						
Input Capacitance	V _{DS} = 25V, V _{GS} = -5V, f = 1.0MHz	C _{iss}	--	51.42	--	pF
Output Capacitance		C _{oss}	--	4.48	--	
Reverse Transfer Capacitance		C _{rss}	--	1.12	--	
Total Gate Charge	V _{DS} = 400V, I _D = 0.01A, V _{GS} = -5V 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} = 300V, I _D = 0.01A, V _{GS} = -5V to 7V, R _G = 6Ω	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} = 16mA, V _{GS} = -5V	V _{SD}	--	--	1.2	V
Reverse Recovery Time	I _F =0.01A, V _{GS} =-10V	t _{rr}	--	243.1	--	ns
Reverse Recovery Charge	dI _F /dt=100A/μs, V _R =30V	Q _{rr}	--	639	--	nC

Notes:

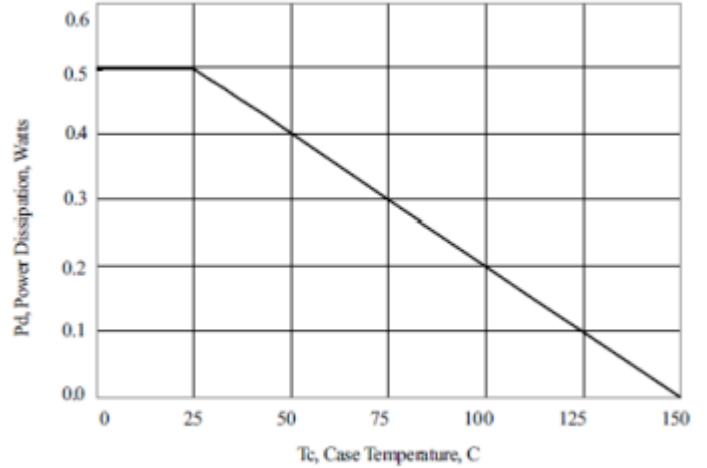
a. pulse test: $PW \leq 380\mu s$, duty cycle $\leq 2\%$

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

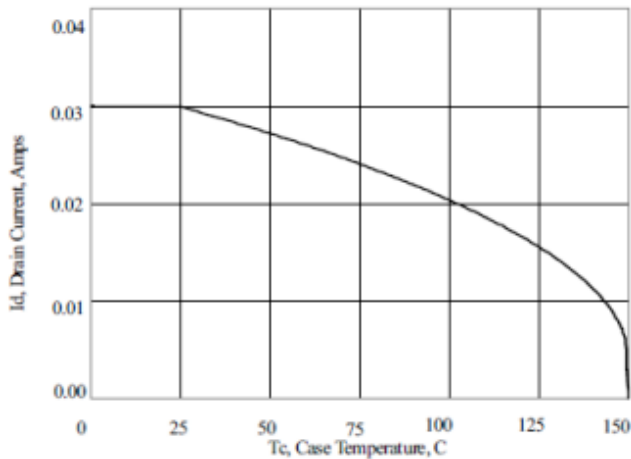
Maximum Forward Bias Safe Operation Area



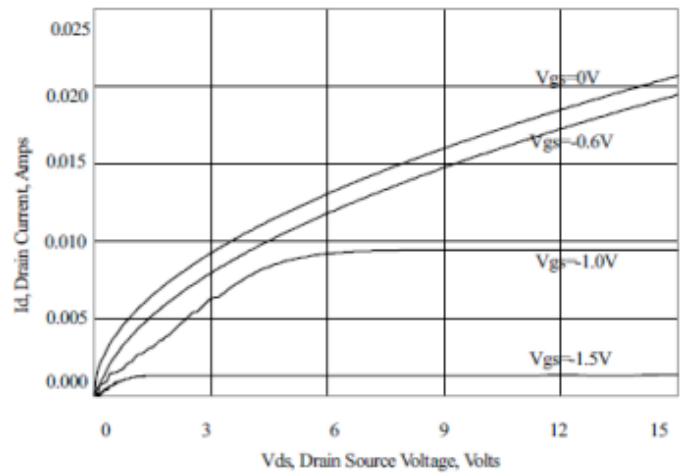
Maximum Power Dissipation vs. Case Temperature



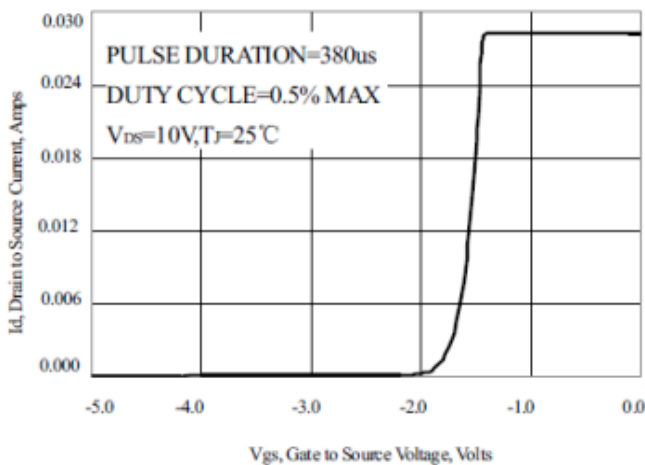
Maximum Continuous Drain Current vs. Case Temperature



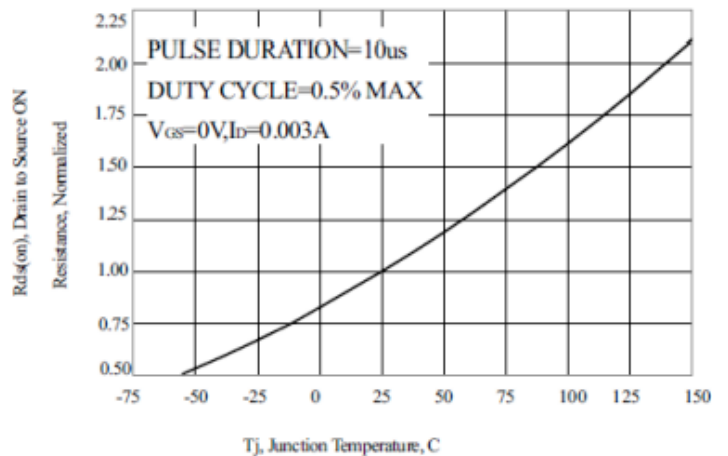
Typical Output Characteristics



Typical Transfer Characteristics

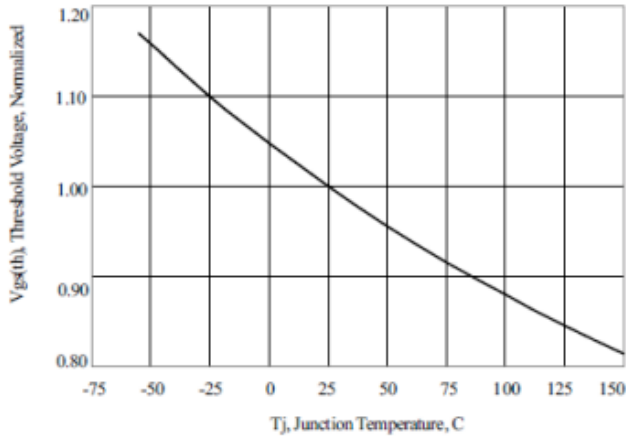


Drain to Source ON Resistance vs. Junction Temperature

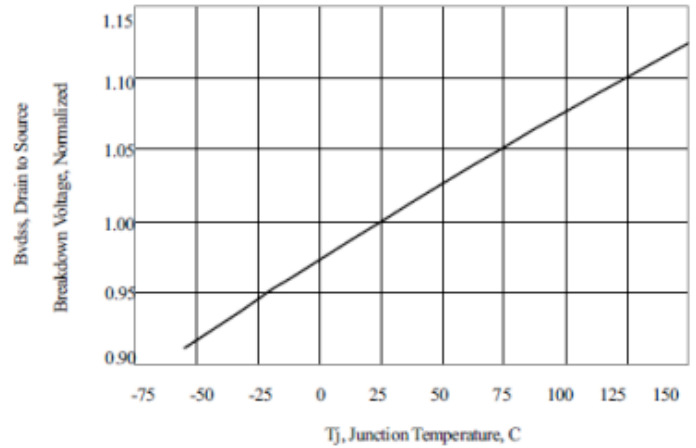


Electrical Characteristics Curves ($T_a = 25^\circ\text{C}$, unless otherwise noted)

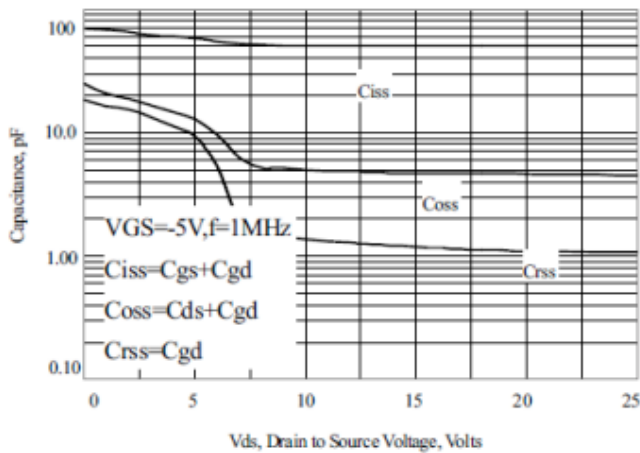
Threshold Voltage vs. Junction Temperature



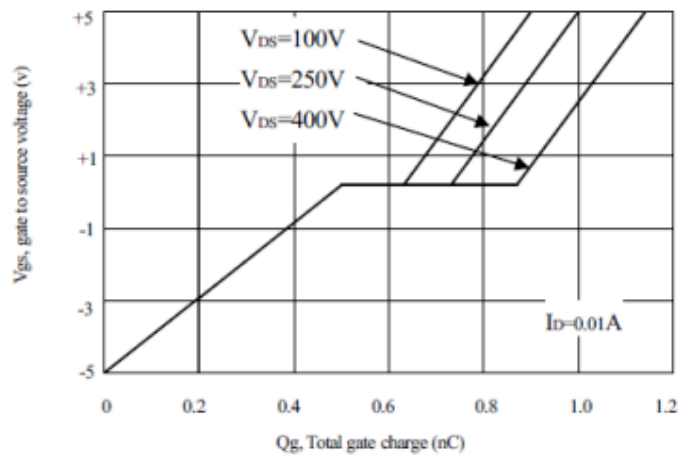
Breakdown Voltage vs. Junction Temperature



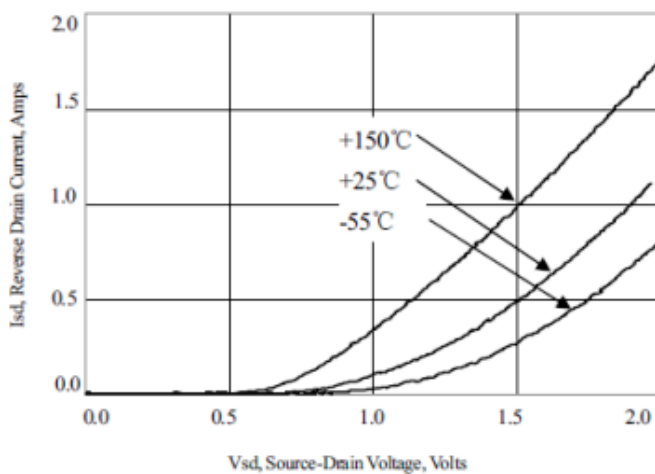
Typical Capacitance vs. Drain to source Voltage



Typical Gate Charge vs. Gate to Source Voltage

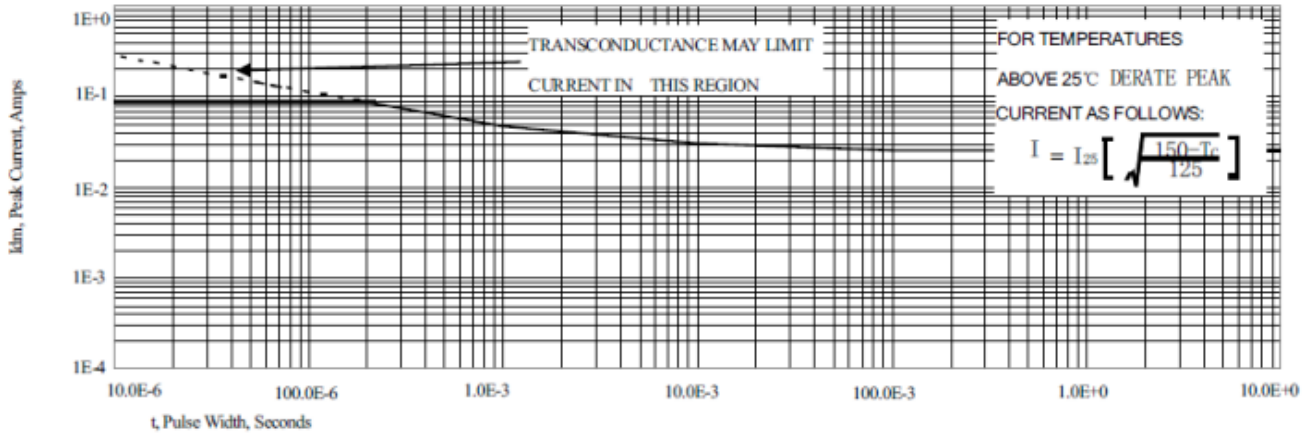


Typical Body Diode Transfer Characteristics

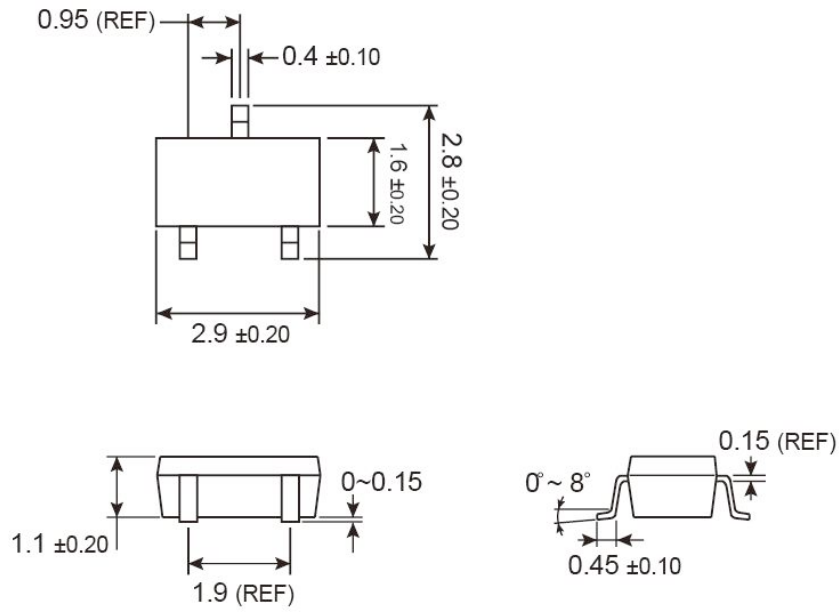


Electrical Characteristics Curves (Ta = 25°C, unless otherwise noted)

Maximum Peak Current Capability



SOT-23 Mechanical Drawing



Unit: Millimeters

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