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台舟电子

TPNTK3139PT1G

P-Channel Mosfet

www.sot23.com.tw

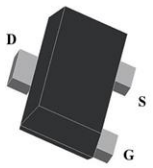
Product Summary

* $R_{DS(on)}$=Typ 530mΩ@V_{GS}= -4.5V
* $R_{DS(on)}$=Typ 730mΩ@V_{GS}= -2.5V
* Lead free product is acquired
* Surface mount package
* P-channel switch with low $R_{DS(on)}$
* Operated at low logic level gate drive
* ESD protection

Application

* Load/Power switch
* Interfacing, logic switching
* Battery management for ultra protable electronics

Package and Pin Configuration



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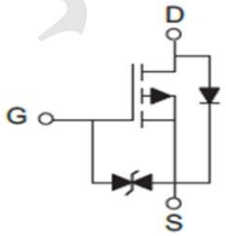
Circuit diagram



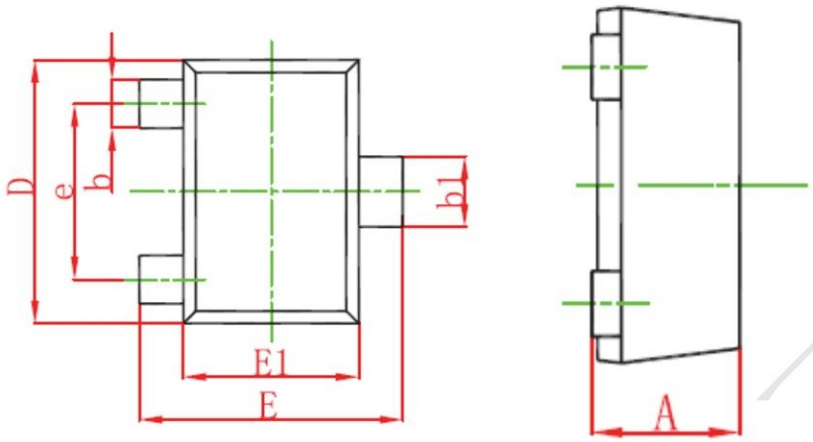
Absolute Maximum Ratings (T_A=25°C unless otherwise noted)

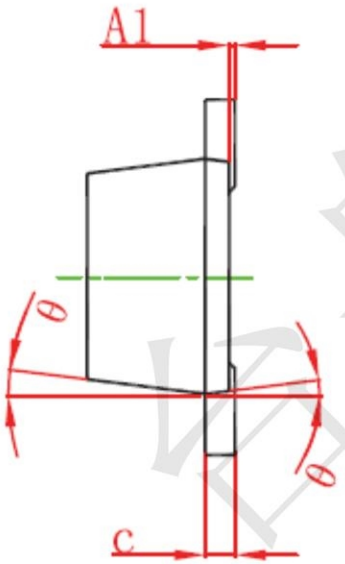
Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-20	V
Gate-Source Voltage	V_{GS}	±12	V
Continuous Drain Current @25°C (note 1)	I_D	-0.85	A
Pulsed Drain Current @25°C (tp=10 μs)	I_{DM}	-2.1	A
Diode Continuous Forward Current	I_S	-0.5	A
Power Dissipation @25°C (note 1)	P_D	690	mW
Thermal Resistance from Junction to Ambient (note 1)	R_{QJA}	180	°C/W
Maximum Junction Temperature	T_J	150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°C

Electrical Characteristics (T_A = 25°C unless otherwise noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Drain-source Breakdown Voltage	$V_{(BR)DS}$	V_{GS} = 0V, I_D = -250μA	-20			V
Drain-to-Source Leakage Current	I_{DS}	V_{DS} = -16V,V_{GS} = 0V			-1	μA
Gate-Body Leakage Current	I_{GS}	V_{GS} = ±12V, V_{DS} = 0V			±10	μA
Gate Threshold Voltage (note 2)	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = -250μA	-0.5	-0.75	-1	V
Static Drain-Source On-Resistance (note 2)	$R_{DS(on)}$	V_{GS} = -4.5V, I_D = -0.55A		530	640	mΩ
		V_{GS} = -2.5V, I_D = -0.45A		730	950	mΩ
		V_{GS} = -1.8V, I_D = -0.35A		1300	1950	mΩ
Forward transconductance (note 2)	gfs	V_{DS} = -5V, I_D = -0.55A		1		S
Diode forward voltage	V_{SD}	I_S= -1A, V_{GS} = 0V		-0.75	-1.1	V
Dynamic Characteristics (note 4)						
Total Gate Charge	Q_g	V_{DS} = -10V, I_D = -1A, V_{GS} = -2.5V		0.53		nC
Total Gate Charge	Q_g	V_{DS} = -10V		0.8		nC
Gate-Source Charge	Q_{gs}	I_D = -1A		0.2		nC
Gate-Drain Charge	Q_{gd}	V_{GS} = -4.5V		0.2		nC
	t_{rr}	I = -		9.2		nS
Reverse Recovery Time	t_{rr}	I_F= -1A,V_{GS} = 0,		9.2		nS
Reverse Recovery Charge	Q_{rr}	dI_F/dt=100A/us		0.8		nC
Input capacitance	C_{iss}	V_{DS} = -10V		58		pF
Output capacitance	C_{oss}	V_{GS} =0V		5.7		pF
Reverse transfer capacitance	C_{rss}	f =1MHz		4.4		pF
Turn-on delay time (note 3)	$t_{d(on)}$	V_{GS}= -4.5V		0.4		μS
Turn-on rise time (note 3)	t_r	V_{DS}= -10V		0.06		μS
Turn-off delay time (note3)	$t_{d(off)}$	I_D = -1.33A		0.02		μS
Turn-off fall time (note 3)	t_f	R_{GEN}=3Ω		0.8		μS

SOT723 - Package Outline Drawing





Symbol	DIMENSIONS			
	MILLIMETERS		INCHES	
	MIN	MAX	MIN	MAX
A	0.43	0.50	0.017	0.020
A1	0.00	0.05	0.000	0.002
b	0.17	0.27	0.007	0.011
b1	0.27	0.37	0.011	0.015
c	0.08	0.15	0.003	0.006
D	1.15	1.25	0.045	0.049
E	1.15	1.25	0.045	0.049
E1	0.75	0.85	0.03	0.033
e	0.8 typ		0.031 typ	
θ	7° REF		7° REF	

Suggested Land Pattern