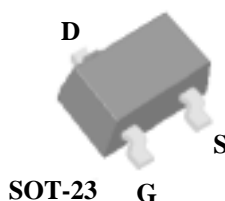


- ▼ Simple Drive Requirement
- ▼ Small Package Outline
- ▼ Surface Mount Device

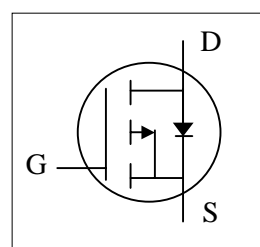


$BV_{DSS}$	-30V
$R_{DS(ON)}$	80m $\Omega$
$I_D$	- 3.2A

## Description

The Advanced Power MOSFETs from TY provide the designer with the best combination of fast switching, low on-resistance and cost-effectiveness.

The SOT-23 package is universally preferred for all commercial-industrial surface mount applications and suited for low voltage applications such as DC/DC converters.



## Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
$V_{DS}$	Drain-Source Voltage	- 30	V
$V_{GS}$	Gate-Source Voltage	$\pm 12$	V
$I_D@T_A=25^\circ\text{C}$	Continuous Drain Current <sup>3</sup>	-3.2	A
$I_D@T_A=70^\circ\text{C}$	Continuous Drain Current <sup>3</sup>	-2.6	A
$I_{DM}$	Pulsed Drain Current <sup>1,2</sup>	-10	A
$P_D@T_A=25^\circ\text{C}$	Total Power Dissipation	1.38	W
	Linear Derating Factor	0.01	W/ $^\circ\text{C}$
$T_{STG}$	Storage Temperature Range	-55 to 150	$^\circ\text{C}$
$T_J$	Operating Junction Temperature Range	-55 to 150	$^\circ\text{C}$

## Thermal Data

Symbol	Parameter	Value	Unit
Rthj-amb	Thermal Resistance Junction-ambient <sup>3</sup>	Max. 90	$^\circ\text{C}/\text{W}$



**Electrical Characteristics @T<sub>j</sub>=25°C(unless otherwise specified)**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
BV <sub>DSS</sub>	Drain-Source Breakdown Voltage	V <sub>GS</sub> =0V, I <sub>D</sub> =-250uA	-30	-	-	V
ΔBV <sub>DSS</sub> /ΔT <sub>j</sub>	Breakdown Voltage Temperature Coefficient	Reference to 25°C, I <sub>D</sub> =-1mA	-	-0.1	-	V/°C
R <sub>DS(ON)</sub>	Static Drain-Source On-Resistance	V <sub>GS</sub> =-10V, I <sub>D</sub> =-3.2A	-	-	60	mΩ
		V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-3.0A	-	-	80	mΩ
		V <sub>GS</sub> =-2.5V, I <sub>D</sub> =-2.0A	-	-	150	mΩ
		V <sub>GS</sub> =-1.8V, I <sub>D</sub> =-1.0A	-	-	250	mΩ
V <sub>GS(th)</sub>	Gate Threshold Voltage	V <sub>DS</sub> =V <sub>GS</sub> , I <sub>D</sub> =-250uA	-0.5	-	-1.2	V
g <sub>fs</sub>	Forward Transconductance	V <sub>DS</sub> =-5V, I <sub>D</sub> =-3.0A	-	9	-	S
I <sub>DSS</sub>	Drain-Source Leakage Current (T <sub>j</sub> =25°C)	V <sub>DS</sub> =-30V, V <sub>GS</sub> =0V	-	-	-1	uA
	Drain-Source Leakage Current (T <sub>j</sub> =70°C)	V <sub>DS</sub> =-24V, V <sub>GS</sub> =0V	-	-	-25	uA
I <sub>GSS</sub>	Gate-Source Leakage	V <sub>GS</sub> = ± 12V	-	-	±100	nA
Q <sub>g</sub>	Total Gate Charge <sup>2</sup>	I <sub>D</sub> =-3.2A	-	10	18	nC
Q <sub>gs</sub>	Gate-Source Charge	V <sub>DS</sub> =-24V	-	1.8	-	nC
Q <sub>gd</sub>	Gate-Drain ("Miller") Charge	V <sub>GS</sub> =-4.5V	-	3.6	-	nC
t <sub>d(on)</sub>	Turn-on Delay Time <sup>2</sup>	V <sub>DS</sub> =-15V	-	7	-	ns
t <sub>r</sub>	Rise Time	I <sub>D</sub> =-3.2A	-	15	-	ns
t <sub>d(off)</sub>	Turn-off Delay Time	R <sub>G</sub> =3.3Ω, V <sub>GS</sub> =-10V	-	21	-	ns
t <sub>f</sub>	Fall Time	R <sub>D</sub> =4.6Ω	-	15	-	ns
C <sub>iss</sub>	Input Capacitance	V <sub>GS</sub> =0V	-	735	1325	pF
C <sub>oss</sub>	Output Capacitance	V <sub>DS</sub> =-25V	-	100	-	pF
C <sub>rss</sub>	Reverse Transfer Capacitance	f=1.0MHz	-	80	-	pF

**Source-Drain Diode**

Symbol	Parameter	Test Conditions	Min.	Typ.	Max.	Units
V <sub>SD</sub>	Forward On Voltage <sup>2</sup>	I <sub>S</sub> =-1.2A, V <sub>GS</sub> =0V	-	-	-1.2	V
t <sub>rr</sub>	Reverse Recovery Time	I <sub>S</sub> =-3.2A, V <sub>GS</sub> =0V,	-	24	-	ns
Q <sub>rr</sub>	Reverse Recovery Charge	dI/dt=100A/μs	-	19	-	nC

**Notes:**

- 1.Pulse width limited by Max. junction temperature.
- 2.Pulse width ≤300us , duty cycle ≤2%.
- 3.Surface mounted on 1 in<sup>2</sup> copper pad of FR4 board ; 270°C/W when mounted on min. copper pad.