

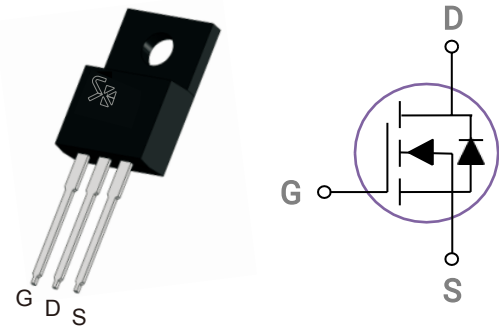
## 80V N Channel MOSFETs Datasheet

### Features

- 80V, N-Channel, LowCiss
- $R_{DS(ON)}=5.9\text{m}\Omega(\text{Max.}) @V_{GS}=4.5\text{V } I_D=15\text{A}$
- $R_{DS(ON)}=4.8\text{m}\Omega(\text{Max.}) @V_{GS}=10\text{V } I_D=20\text{A}$

### Applications

- Networking
- LED Lighting Applications
- Quick Charger Applications
- DC-DC Power Management



TO-220F

### Absolute Maximum Ratings $T_c=25^\circ\text{C}$ unless otherwise noted

Symbol	Parameter	Rating	Unit
$V_{DSS}$	Drain-Source Voltage	80V	V
$I_D$	Continuous Drain Current	20A	A
$V_{GSS}$	Gate-Source Voltage	+20V / -12V	V
$T_J$	Operating Junction Temperature Range	-50 to 150°C	°C
$T_{STG}$	Storage Temperature Range	-50 to 150°C	°C

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

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
$BV_{DSS}$	Drain-Source Breakdown Voltage	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	80	---	---	V
$I_{DSS}$	Drain-Source Leakage Current	$V_{DS}=80\text{V}, V_{GS}=0\text{V}, T_J=25^\circ\text{C}$	---	---	1	$\mu\text{A}$
		$V_{DS}=64\text{V}, V_{GS}=0\text{V}, T_J=85^\circ\text{C}$	---	---	10	$\mu\text{A}$
$I_{GSS}$	Gate-Source Leakage Current	$V_{GS}=20\text{V}, V_{DS}=0\text{V}$	---	---	100	nA
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10\text{V}, I_D=20\text{A}$	---	4.5	4.8	$\text{m}\Omega$
		$V_{GS}=4.5\text{V}, I_D=15\text{A}$	---	5.6	5.9	$\text{m}\Omega$
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}, I_D=250\mu\text{A}$	1	1.6	2.5	V

Note :

1. The data tested by pulsed, pulse width  $\leq 300\mu\text{s}$ , duty cycle  $\leq 2\%$ .

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

### Dynamic Characteristics <sup>(Note1)</sup>

$C_{iss}$	Input Capacitance	$V_{DS}=25V, V_{GS}=0V,$ $F=1.0MHz$	-	1500	-	PF
$C_{oss}$	Output Capacitance		-	290	-	PF
$C_{rss}$	Reverse Transfer Capacitance		-	180	-	PF

### Switching Characteristics <sup>(Note 1)</sup>

$t_{d(on)}$	Turn-on Delay Time	$V_{DD}=75V, R_L=5\Omega$ $V_{GS}=10V, R_{GEN}=3\Omega$	-	10.5	-	nS
$t_r$	Turn-on Rise Time		-	5.5	-	nS
$t_{d(off)}$	Turn-Off Delay Time		-	14.5	-	nS
$t_f$	Turn-Off Fall Time		-	3	-	nS
$Q_g$	Total Gate Charge	$V_{DS}=75V, I_D=10A,$ $V_{GS}=10V$	-	17	-	nC
$Q_{gs}$	Gate-Source Charge		-	4	-	nC
$Q_{gd}$	Gate-Drain Charge		-	4.4	-	nC

### Drain-Source Diode Characteristics

$V_{SD}$	Diode Forward Voltage <sup>(Note 2)</sup>	$V_{GS}=0V, I_S=20A$	-	-	1.2	V
$I_S$	Diode Forward Current <sup>(Note 3)</sup>	-	-	-	20	A
$t_{rr}$	Reverse Recovery Time	$T_J = 25^\circ\text{C}, I_F = 10A$ $di/dt = 100A/\mu\text{s}$ <sup>(Note3)</sup>	-	32	-	nS
$Q_{rr}$	Reverse Recovery Charge		-	53	-	nC
$t_{on}$	Forward Turn-On Time	Intrinsic turn-on time is negligible (turn-on is dominated by LS+LD)				

#### Notes:

1. Guaranteed by design, not subject to production
2. Pulse Test: Pulse Width  $\leq 300\mu\text{s}$ , Duty Cycle  $\leq 2\%$ .
3. Surface Mounted on FR4 Board,  $t \leq 10$  sec.

PACKAGE OUTLINE

Plastic surface mounted package; 2 leads

TO-220F

