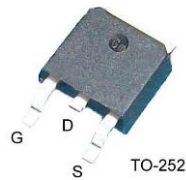


**Features**

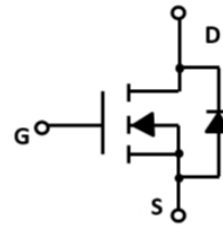
- 100V, 16A
- $R_{DS(ON)} = 115m\Omega$  (Max.) @  $V_{GS} = 10V$ ,  $I_D = 8A$
- High Power and Current Handling Capability
- Lead Free Product is Acquired
- Surface Mount Package

**Application**

- PWM Application
- Load Switch
- Power Management

**Package**

SFD16N10AT

**Absolute Maximum Ratings**  $T_C = 25^\circ\text{C}$  unless otherwise specified

Symbol	Parameter	Max.	Units
$V_{DSS}$	Drain-Source Voltage	100	V
$V_{GSS}$	Gate-Source Voltage	$\pm 20$	V
$I_D$	Continuous Drain Current	16	A
	$T_C = 25^\circ\text{C}$		
$I_{DM}$	Pulsed Drain Current <sup>note1</sup>	32	A
EAS	Single Pulsed Avalanche Energy <sup>note2</sup>	45	mJ
$P_D$	Power Dissipation $T_C = 25^\circ\text{C}$	43	W
$R_{\theta JC}$	Thermal Resistance, Junction to Case	2.5	$^\circ\text{C}/\text{W}$
$T_J, T_{STG}$	Operating and Storage Temperature Range	-55 to +150	$^\circ\text{C}$

\*Drain current limited by maximum junction temperature

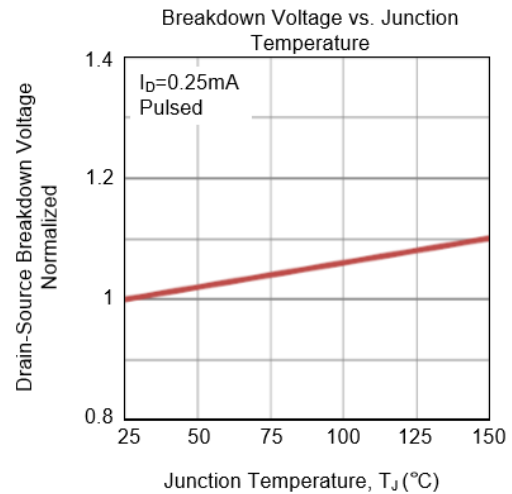
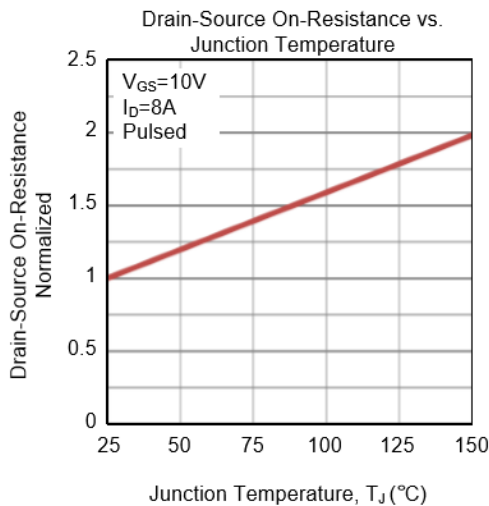
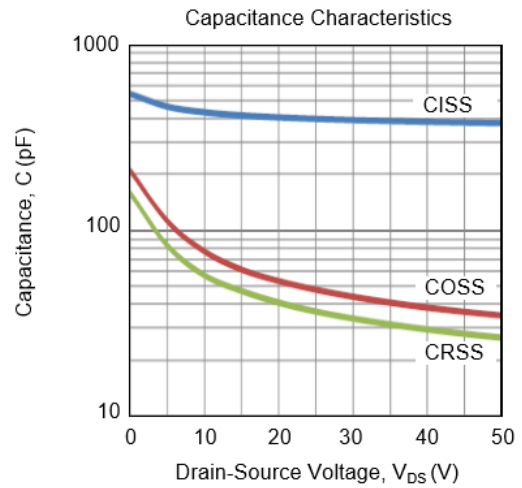
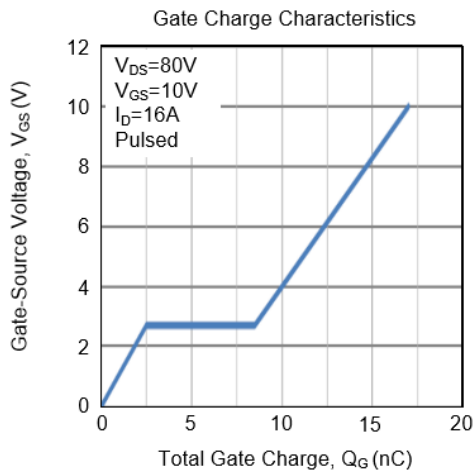
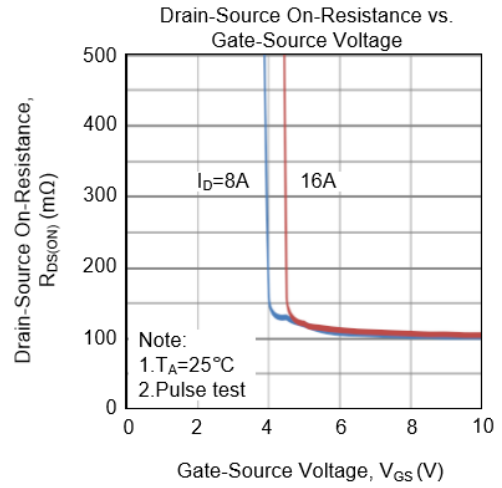
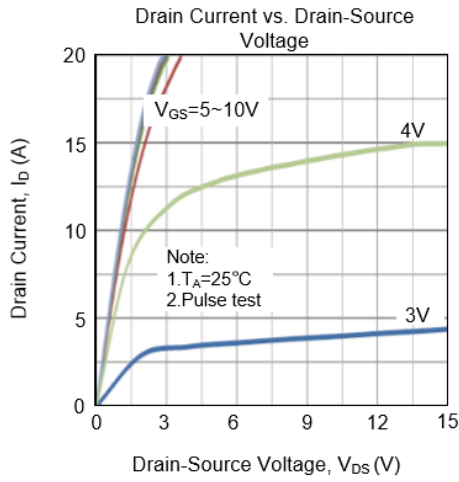
**Electrical Characteristics**  $T_C=25^{\circ}\text{C}$  unless otherwise specified

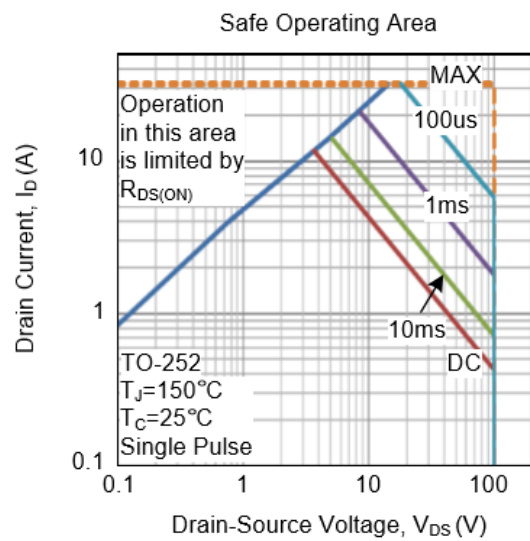
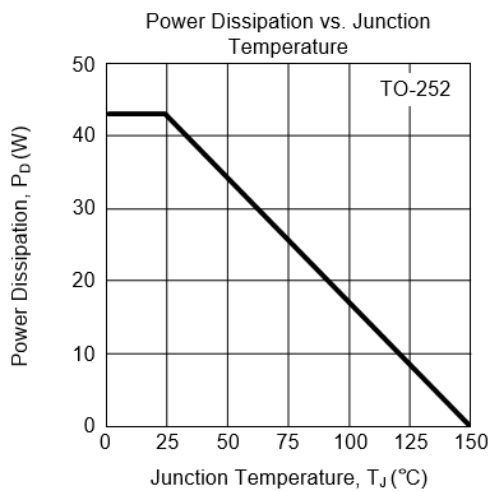
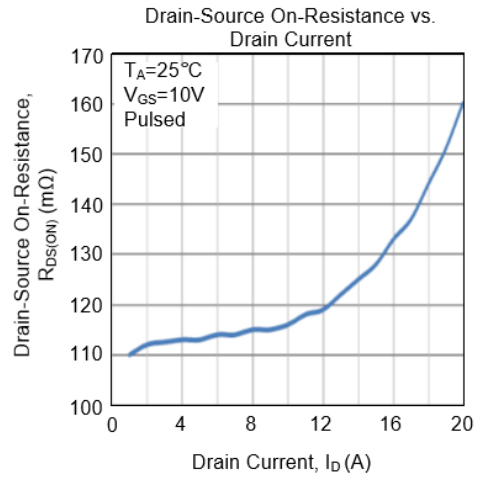
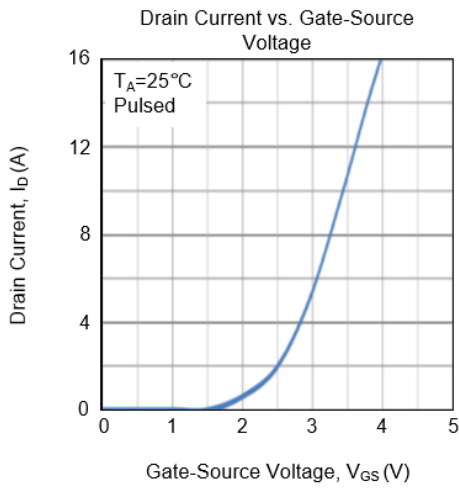
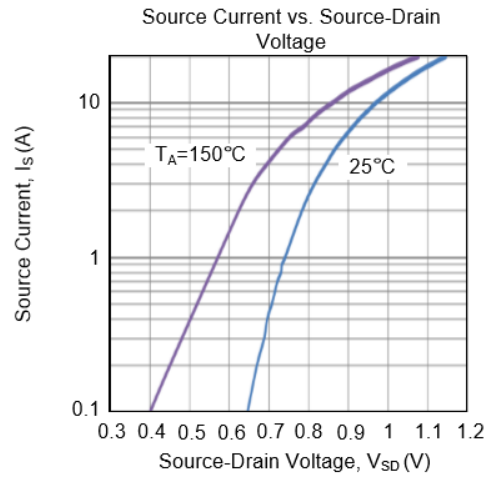
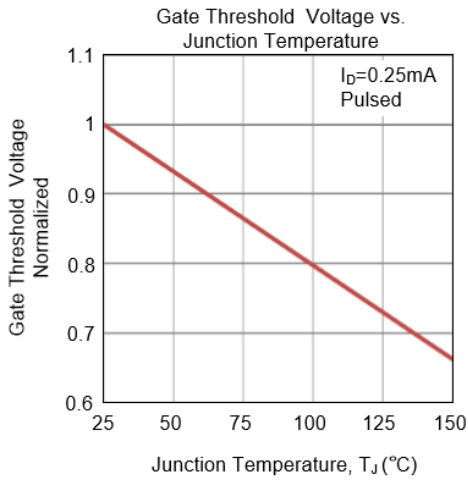
Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
<b>Off Characteristic</b>						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	100	-	-	V
$I_{DSS}$	Zero Gate Voltage Drain Current	$V_{DS}=100V, V_{GS} = 0V$	-	-	1	$\mu A$
$I_{GSS}$	Gate to Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 20V$	-	-	$\pm 100$	nA
<b>On Characteristics</b>						
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	1.0	-	3.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance <sup>note3</sup>	$V_{GS} = 10V, I_D = 8A$	-	-	115	m $\Omega$
		$V_{GS} = 4.5V, I_D = 8A$	-	-	135	
<b>Dynamic Characteristics</b>						
$C_{iss}$	Input Capacitance	$V_{DS} = 25V, V_{GS} = 0V,$ $f = 1.0MHz$	-	400	-	pF
$C_{oss}$	Output Capacitance		-	48	-	pF
$C_{rss}$	Reverse Transfer Capacitance		-	36	-	pF
$Q_g$	Total Gate Charge	$V_{DD} = 80V, I_D = 16A,$ $V_{GS} = 10V, I_G=1mA$	-	17	-	nC
$Q_{gs}$	Gate-Source Charge		-	2.5	-	nC
$Q_{gd}$	Gate-Drain("Miller") Charge		-	6	-	nC
<b>Switching Characteristics</b>						
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 50V, I_D = 16A,$ $R_G = 25\Omega, V_{GS}= 10V$	-	24	-	ns
$t_r$	Turn-On Rise Time		-	27	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	84	-	ns
$t_f$	Turn-Off Fall Time		-	48	-	ns
<b>Drain-Source Diode Characteristics and Maximum Ratings</b>						
$I_S$	Maximum Continuous Drain to Source Diode Forward Current		-	-	16	A
$V_{SD}$	Drain to Source Diode Forward Voltage	$V_{GS} = 0V, I_S=16A$	-	-	1.4	V
$t_{rr}$	Body Diode Reverse Recovery Time	$V_{GS} = 0V, I_F = 16A,$	-	33	-	ns
$Q_{rr}$	Body Diode Reverse Recovery Time Charge	$di/dt = 100A/\mu s$	-	34	-	nC

Notes:

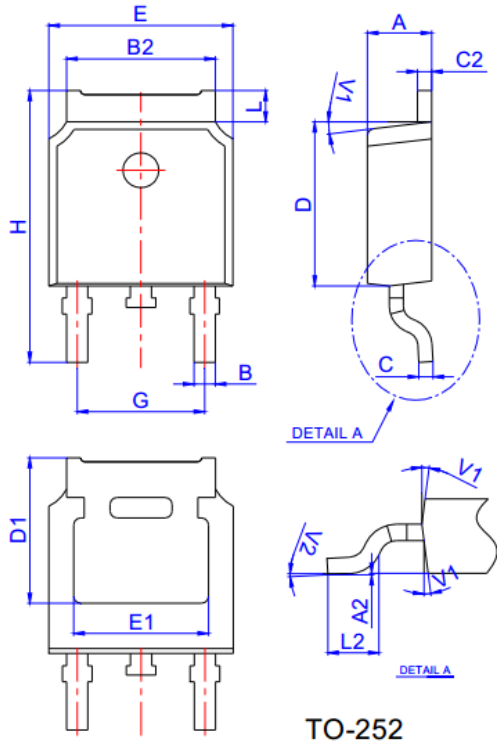
1. Repetitive Rating: Pulse width limited by maximum junction temperature
2. EAS condition :  $L=10mH, I_{AS}=3.0A, V_{DD}=50V, R_G = 25\Omega, \text{Starting } T_J = 25^{\circ}\text{C}$
3. Pulse width  $\leq 300\mu s$ ; duty cycle  $\leq 2\%$ .

### Typical Performance Characteristics





**Package Mechanical Data**



Ref.	Dimensions					
	Millimeters			Inches		
	Min.	Typ.	Max.	Min.	Typ.	Max.
A	2.10		2.50	0.083		0.098
A2	0		0.10	0		0.004
B	0.66		0.86	0.026		0.034
B2	5.18		5.48	0.202		0.216
C	0.40		0.60	0.016		0.024
C2	0.44		0.58	0.017		0.023
D	5.90		6.30	0.232		0.248
D1	5.30REF			0.209REF		
E	6.40		6.80	0.252		0.268
E1	4.63			0.182		
G	4.47		4.67	0.176		0.184
H	9.50		10.70	0.374		0.421
L	1.09		1.21	0.043		0.048
L2	1.35		1.65	0.053		0.065
V1		7°			7°	
V2	0°		6°	0°		6°

TO-252

## SFD16N10AT Product Description

Silicon N-Channel MOSFET



### NOTE:

1. We strongly recommend customers check carefully on the trademark when buying our product, if there is any question, please don't be hesitate to contact us.
2. Please do not exceed the absolute maximum ratings of the device when circuit designing.
3. Winsemi Microelectronics Co., Ltd reserved the right to make changes in this specification sheet and is subject to change without prior notice.

### CONTACT:

Winsemi Microelectronics Co., Ltd.

ADD: Room 1002, East, Phase 2, HighTech Plaza, Tian-An Cyber Park, Che gong miao, FuTian, Shenzhen, P.R. China.

Post Code : 518040

Tel : +86-755-8250 6288

FAX : +86-755-8250 6299

Web Site : [www.winsemi.com](http://www.winsemi.com)