

# **FDMS8674** N-Channel PowerTrench<sup>®</sup> MOSFET **30V, 21A, 5.0m**Ω

## **Features**

- Max  $r_{DS(on)} = 5.0 m\Omega$  at  $V_{GS} = 10V$ ,  $I_D = 17A$
- Max  $r_{DS(on)} = 8.0 \text{m}\Omega$  at  $V_{GS} = 4.5 \text{V}$ ,  $I_D = 14 \text{A}$
- Advanced Package and Silicon combination for low  $r_{\text{DS}(\text{on})}$  and high efficiency
- MSL1 robust package design
- RoHS Compliant

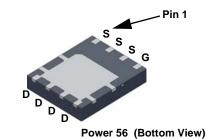


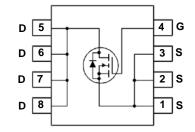
## **General Description**

The FDMS8674 has been designed to minimize losses in power conversion application. Advancements in both silicon and package technologies have been combined to offer the lowest  $r_{\text{DS(on)}}$  while maintaining excellent switching performance.

## Applications

- Computing VR & IMVP Vcore
- Secondary Side Synchronous Rectifier
- POL DC/DC Converter
- Oring FET/ Load Switch





# MOSFET Maximum Ratings T<sub>A</sub> = 25°C unless otherwise noted

Symbol	Parameter			Ratings	Units
V <sub>DS</sub>	Drain to Source Voltage			30	V
V <sub>GS</sub>	Gate to Source Voltage			±20	V
	Drain Current -Continuous (Package limited)	$T_{C} = 25^{\circ}C$		21	
	-Continuous (Silicon limited)	$T_{C} = 25^{\circ}C$		94	
D	-Continuous	$T_A = 25^{\circ}C$	(Note 1a)	17	Α
	-Pulsed			150	
E <sub>AS</sub>	Single Pulse Avalanche Energy		(Note 3)	181	mJ
P <sub>D</sub>	Power Dissipation	$T_{C} = 25^{\circ}C$	78		W
	Power Dissipation	$T_A = 25^{\circ}C$	(Note 1a)	2.5	VV
T <sub>J</sub> , T <sub>STG</sub>	Operating and Storage Junction Temperature Range			-55 to +150	°C

# **Thermal Characteristics**

$R_{ ext{ heta}JC}$	Thermal Resistance, Junction to Case	1.6	°C/W
$R_{\thetaJA}$	Thermal Resistance, Junction to Ambient (Note	a) 50	C/vv

## **Package Marking and Ordering Information**

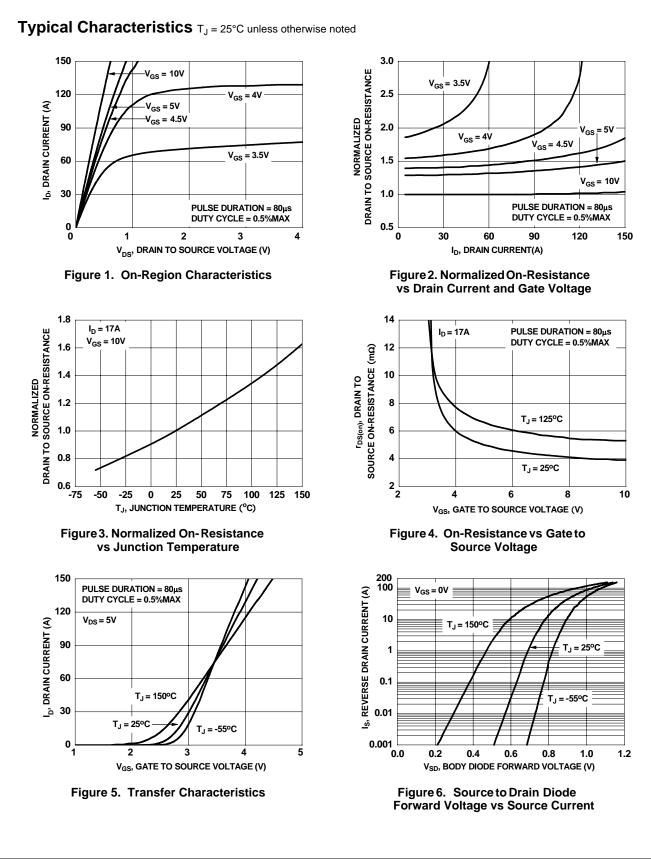
Device Marking	Device	Package	Reel Size	Tape Width	Quantity
FDMS8674	FDMS8674	Power 56	13"	12mm	3000units

April 2008

$\begin{array}{ c c c c c } \hline Pain to Source Breakdown Voltage & I_D = 250 \mu A, V_{GS} = 0V & 30 & V \\ \hline MBV_{DSS} & Breakdown Voltage Temperature & I_D = 250 \mu A, referenced to 25°C & 25 & mV^{Prince} \\ \hline Dress & Zero Gate Voltage Drain Current & V_{DS} = 24V, V_{GS} = 0V & 1 & \mu A \\ \hline Dress & Gate to Source Leakage Current & V_{GS} = 420V, V_{DS} = 0V & 4100 & nA \\ \hline Dress & Gate to Source Threshold Voltage & V_{GS} = 420V, V_{DS} = 0V & 4100 & nA \\ \hline Dress & Gate to Source Threshold Voltage & V_{GS} = 1250 \mu A & 1.0 & 1.8 & 3.0 & V \\ \hline Dress & Gate to Source Threshold Voltage & V_{GS} = 10V, I_D = 250 \mu A & 1.0 & 1.8 & 3.0 & V \\ \hline Dress & Gate to Source Threshold Voltage & V_{GS} = 10V, I_D = 17A & 4.1 & 5.0 \\ \hline Dress & Temperature Coefficient & V_{GS} = 10V, I_D = 17A & 4.1 & 5.0 \\ \hline V_{GS} = 10V, I_D = 17A & 4.1 & 5.0 \\ \hline V_{GS} = 10V, I_D = 17A & 4.1 & 5.0 \\ \hline V_{GS} = 10V, I_D = 17A & 87 & S \\ \hline Dress & Forward Transconductance & V_{DS} = 10V, I_D = 17A & 87 & S \\ \hline Dress & Qutput Capacitance & V_{DS} = 15V, V_{GS} = 0V, \\ \hline Trans & Reverse Transfer Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline Dress & Qutput Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline Dress & Turn-On Delay Time & V_{DS} = 15V, I_D = 17A, V_{GS} = 6\Omega & 26 & 422 & ns \\ \hline Dress & Turn-On Delay Time & V_{DS} = 10V, R_{GEN} = 6\Omega & 26 & 422 & ns \\ \hline Dress & Turn-On Delay Time & V_{DS} = 0V to 10V \\ \hline Dress & Turn-On Delay Time & V_{DS} = 0V to 10V \\ \hline Dress & Turn-On Delay Time & V_{DS} = 0V to 10V \\ \hline Dress & Turn-On Delay Time & V_{DS} = 0V to 10V \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & V_{DS} = 0V to 10V \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.26 & 377 & nC \\ \hline Dress & Turn-On Delay Time & 0.2$	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{ c c c c } \hline Drain to Source Breakdown Voltage & I_D = 250 \mu A, V_{GS} = 0V & 30 & V \\ \hline Breakdown Voltage Temperature & I_D = 250 \mu A, referenced to 25°C & 25 & mV/°C \\ \hline Zero Gate Voltage Drain Current & V_{DS} = 24V, V_{GS} = 0V & 1 & \mu A \\ \hline Gate to Source Leakage Current & V_{GS} = ±20V, V_{DS} = 0V & \pm 100 & nA \\ \hline aracteristics \\ \hline Gate to Source Threshold Voltage & V_{GS} = V_{DS}, I_D = 250 \mu A & 1.0 & 1.8 & 3.0 & V \\ \hline Gate to Source Threshold Voltage & I_D = 250 \mu A, referenced to 25°C & -6 & mV/°C \\ \hline Gate to Source Threshold Voltage & I_D = 250 \mu A, referenced to 25°C & -6 & mV/°C \\ \hline Static Drain to Source On Resistance & V_{GS} = 10V, I_D = 17A & 4.1 & 5.0 \\ \hline V_{GS} = 4.5V, I_D = 14A & 5.8 & 8.0 \\ \hline V_{GS} = 10V, I_D = 17A, T_J = 125°C & 5.8 & 8.3 \\ \hline Forward Transconductance & V_{DD} = 10V, I_D = 17A & 87 & S \\ \hline Input Capacitance & V_{DD} = 10V, I_D = 17A & 1745 & 2320 & pF \\ \hline Output Capacitance & f = 1MHz & 130 & 195 & pF \\ \hline Gate Resistance & f = 1MHz & 0.9 & \Omega \\ \hline Input Characteristics & Input Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline Input Characteristics & Input Capacitance & f = 10V, V_{DD} = 15V, V_{GS} = 0V, \\ \hline Input Capacitance & V_{DD} = 15V, V_{DS} = 17A, \\ \hline MUthoreon & MUthoreon $
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Breakdown Voltage Temperature Coefficient $I_D = 250\mu$ A, referenced to $25^{\circ}$ C25mV/°CZero Gate Voltage Drain Current $V_{DS} = 24V, V_{GS} = 0V$ 1 $\mu$ AGate to Source Leakage Current $V_{GS} = \pm 20V, V_{DS} = 0V$ $\pm 100$ nAaracteristicsGate to Source Threshold Voltage $V_{GS} = \pm 20V, V_{DS} = 0V$ 1.01.83.0Von Gate to Source Threshold Voltage Temperature Coefficient $V_{GS} = V_{DS}, I_D = 250\mu$ A1.01.83.0Von Gate to Source Threshold Voltage Temperature Coefficient $V_{DS} = 10V, I_D = 17A$ 4.15.0mV/°CStatic Drain to Source On Resistance $V_{GS} = 10V, I_D = 17A$ 4.15.88.0mΩVGS = 10V, I_D = 17A, T_J = 125°C5.88.3mΩmΩForward Transconductance $V_{DD} = 10V, I_D = 17A$ 87Sic Characteristics $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ 130195pFGate Resistancef = 1MHz0.9 $\Omega$ $\Omega$ ing Characteristics $f = 1MHz$ 0.9 $\Omega$ $\Omega$ ing Characteristics $I_{10} = 15V, I_D = 17A, V_{OS} = 6\Omega$ $\Omega$ $\Omega$ ing Characteristics $I_{10} = 15V, I_D = 17A, V_{OS} = 6\Omega$ $\Omega$ $\Omega$ ing Characteristics $I_{10} = 15V, I_D = 17A, V_{OS} = 6\Omega$ $\Omega$ $\Omega$ ing Characteristics $I_{10} = 15V, I_D = 17A, V_{OS} = 6\Omega$ $I_{10} = 10$ ing Characteristics $I_{10} = 15V, I_D = 17A, V_{OS} = 6\Omega$ $I_{10} = 10$
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c } l_{GSS} & Gate to Source Leakage Current & V_{GS} = \pm 20V, V_{DS} = 0V & \pm 100 \\ \hline \\$	Gate to Source Leakage Current $V_{GS} = \pm 20V, V_{DS} = 0V$ $\pm 100$ nAaracteristicsGate to Source Threshold Voltage Temperature Coefficient $V_{GS} = V_{DS}, I_D = 250\mu$ A1.01.83.0VGate to Source Threshold Voltage Temperature Coefficient $I_D = 250\mu$ A, referenced to $25^{\circ}$ C-6mV/°CStatic Drain to Source On Resistance $V_{GS} = 10V, I_D = 17A$ 4.15.0mQ $V_{GS} = 10V, I_D = 17A, T_J = 125^{\circ}$ C5.88.0mQForward Transconductance $V_{DD} = 10V, I_D = 17A$ 87Sthic Characteristics $V_{DS} = 15V, V_{GS} = 0V, f = 10Hz$ 17452320pFOutput Capacitance $V_{DS} = 15V, V_{GS} = 0V, f = 10Hz$ 130195pFGate Resistancef = 1MHz0.9 $\Omega$ $\Omega$ ing Characteristics $V_{DD} = 15V, I_D = 17A, V_{OS} = 10V, I_{OS} = 10V, I$
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c } I_{GSS} & Gate to Source Leakage Current & V_{GS} = \pm 20V, V_{DS} = 0V & \pm 100 \\ \hline \\$	aracteristicsGate to Source Threshold Voltage Temperature Coefficient $V_{GS} = V_{DS}$ , $I_D = 250\mu$ A1.01.83.0VGate to Source Threshold Voltage Temperature Coefficient $I_D = 250\mu$ A, referenced to $25^{\circ}$ C-6mV/°CStatic Drain to Source On Resistance $V_{GS} = 10V$ , $I_D = 17A$ 4.15.0V_{GS} = 10V, $I_D = 17A$ $4.1$ 5.0V_{GS} = 10V, $I_D = 17A$ 5.88.0Max $V_{GS} = 10V$ , $I_D = 17A$ , $T_J = 125^{\circ}$ C5.8Forward Transconductance $V_{DD} = 10V$ , $I_D = 17A$ 87Stic Characteristics $V_{DS} = 15V$ , $V_{GS} = 0V$ , f = 1MHz1745Quput Capacitance Gate Resistance $f = 1MHz$ 0.9 $Gate Resistance$ $f = 1MHz$ 0.9 $\Omega$ $\Omega$ ing Characteristics $V_{DD} = 15V$ , $I_D = 17A$ , $V_{CD} = 15V$ , $I_D = 17A$ , $V_{CD} = 10V$ 11 $\Omega$ <tr< td=""></tr<>
	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{tabular}{ c c c c c } \hline Gate to Source Threshold Voltage & V_{GS} = V_{DS}, \ I_D = 250 \mu A & 1.0 & 1.8 & 3.0 & V \\ \hline Gate to Source Threshold Voltage & I_D = 250 \mu A, referenced to 25°C & -6 & mV/°C \\ \hline I_D = 250 \mu A, referenced to 25°C & -6 & mV/°C \\ \hline V_{GS} = 10V, \ I_D = 17A & 4.1 & 5.0 & V_{GS} = 4.5V, \ I_D = 14A & 5.8 & 8.0 & m\Omega \\ \hline V_{GS} = 10V, \ I_D = 17A, \ T_J = 125°C & 5.8 & 8.3 & \hline V_{DD} = 10V, \ I_D = 17A & 87 & S \\ \hline Input Capacitance & V_{DD} = 10V, \ I_D = 17A & 87 & S \\ \hline Input Capacitance & V_{DD} = 10V, \ I_D = 17A & 87 & S \\ \hline Input Capacitance & V_{DS} = 15V, \ V_{GS} = 0V, & 1745 & 2320 & pF \\ \hline Output Capacitance & f = 1MHz & 130 & 195 & pF \\ \hline Gate Resistance & f = 1MHz & 0.9 & \Omega \\ \hline Input Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline Input Capacitance & f = 10Hz & 0.9 & \Omega \\ \hline Input Capacitance & f = 10Hz & 0.9 & \Omega \\ \hline Input Capacitance & f = 10Hz & 0.9 & 0.9 & \Omega \\ \hline Input Capacitance & f = 10Hz & 0.9 & 0.9 & \Omega \\ \hline Input Capacitance & f = 10Hz & 0.9 & 0.9 & \Omega \\ \hline Input Capacitance & f = 10Hz & 0.9 & 0$
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$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{tabular}{ c c c c c } \hline Gate to Source Threshold Voltage Temperature Coefficient & I_D = 250 \mu A, referenced to 25°C & -6 & mV/°C \\ \hline I_D = 250 \mu A, referenced to 25°C & -6 & mV/°C \\ \hline V_{GS} = 10V, I_D = 17A & 4.1 & 5.0 \\ \hline V_{GS} = 4.5V, I_D = 14A & 5.8 & 8.0 \\ \hline V_{GS} = 10V, I_D = 17A, T_J = 125°C & 5.8 & 8.3 \\ \hline Forward Transconductance & V_{DD} = 10V, I_D = 17A & 87 & S \\ \hline Input Capacitance & V_{DS} = 15V, V_{GS} = 0V, \\ \hline Output Capacitance & f = 1MHz & 130 & 195 & pF \\ \hline Gate Resistance & f = 1MHz & 0.9 & \Omega \\ \hline Input Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline Input Capacitance & f = 1000 & 11000 & 11000 & 10000 & 0.0 \\ \hline Input Capacitance & f = 10000 & 0.0 & 0.0 & 0.0 \\ \hline Input Capacitance & f = 10000 & 0.0 & 0.0 & 0.0 & 0.0 \\ \hline Input Capacitance & f = 10000 & 0.0 & 0.0 & 0.0 & 0.0 \\ \hline Input Capacitance & f = 100000 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 & 0.0 \\ \hline Input Capacitance & f = 100000 & 0.0 &$
		$\begin{tabular}{ c c c c c c c c c c c } \hline V_{GS} = 10V, \ I_D = 17A & 4.1 & 5.0 \\ \hline V_{GS} = 4.5V, \ I_D = 14A & 5.8 & 8.0 \\ \hline V_{GS} = 10V, \ I_D = 17A, \ T_J = 125^\circ C & 5.8 & 8.3 \\ \hline \hline Forward Transconductance & V_{DD} = 10V, \ I_D = 17A & 87 & S \\ \hline \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \$
$\begin{array}{ c c c c c c } \hline Static Drain to Source On Resistance} & V_{GS} = 4.5V, I_D = 14A & 5.8 & 8.0 \\ \hline V_{GS} = 10V, I_D = 17A, T_J = 125^\circ C & 5.8 & 8.3 \\ \hline V_{DS} = 10V, I_D = 17A, T_J = 125^\circ C & 5.8 & 8.3 \\ \hline V_{DD} = 10V, I_D = 17A & 87 & S \\ \hline Oynamic Characteristics \\ \hline C_{rss} & Input Capacitance & V_{DS} = 15V, V_{GS} = 0V, \\ \hline C_{rss} & Reverse Transfer Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline Switching Characteristics \\ \hline d_{001} & Turn-On Delay Time & V_{DD} = 15V, I_D = 17A, \\ \hline r_{c} & Rise Time & V_{GS} = 10V, R_{GEN} = 6\Omega & 111 & 20 & ns \\ \hline d_{0ff} & Turn-Off Delay Time & V_{DD} = 15V, I_D = 17A, \\ \hline r_{d} & Fall Time & V_{GS} = 0V to 10V \\ \hline A_{g} & Total Gate Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & Gate to Source Charge & V_{GS} = 0V to 5V & V_{DD} = 15V, \\ \hline A_{g} & A & A & 0 & nC \\ \hline & A & A & 0 & nC \\ \hline & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & A & 0 & nC \\ \hline & A & A & A & 0 & nC \\ \hline & A & A & A & $		$\begin{array}{ c c c c c c } \hline Static Drain to Source On Resistance} & \hline V_{GS} = 4.5 V, \ I_D = 14 A & 5.8 & 8.0 \\ \hline V_{GS} = 10 V, \ I_D = 17 A, \ T_J = 125^\circ C & 5.8 & 8.3 \\ \hline \hline Forward Transconductance} & V_{DD} = 10 V, \ I_D = 17 A & 87 & S \\ \hline \textbf{ic Characteristics} & & & & & & \\ \hline \textbf{input Capacitance} & & & & & & & & \\ \hline Output Capacitance & & & & & & & & & \\ \hline Output Capacitance & & & & & & & & & & & \\ \hline Output Capacitance & & & & & & & & & & & & & \\ \hline Reverse Transfer Capacitance & & & & & & & & & & & & & & & & & & &$
$\begin{tabular}{ c c c c c c c } \hline V_{GS} = 10V, \ I_D = 17A, \ T_J = 125^\circ C & 5.8 & 8.3 \\ \hline V_{GS} = 10V, \ I_D = 17A, \ T_J = 125^\circ C & 5.8 & 8.3 \\ \hline V_{DD} = 10V, \ I_D = 17A & 87 & S \\ \hline Oynamic Characteristics \\ \hline C_{iss} & Input Capacitance & V_{DS} = 15V, \ V_{GS} = 0V, \\ \hline f = 1MHz & 860 & 1145 & pF \\ \hline C_{rss} & Reverse Transfer Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline R_{rss} & Gate Resistance & f = 1MHz & 0.9 & \Omega \\ \hline Oynamic Characteristics \\ \hline C_{rss} & Reverse Transfer Capacitance & f = 1MHz & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1MHz & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1MHz & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1MHz & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1MHz & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1000 & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1000 & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1000 & 0.9 & \Omega \\ \hline Oynamic Characteristics & f = 1000 & 0.9 & \Omega \\ \hline Oynamic Characteristics & 0.9 &$	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	V <sub>GS</sub> = 10V, I <sub>D</sub> = 17A, T <sub>J</sub> = 125°C         5.8         8.3           Forward Transconductance         V <sub>DD</sub> = 10V, I <sub>D</sub> = 17A         87         S           Aic Characteristics         No. 10 = 17A         87         S           Input Capacitance         V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz         1745         2320         pF           Output Capacitance         V <sub>DS</sub> = 15V, V <sub>GS</sub> = 0V, f = 1MHz         130         195         pF           Gate Resistance         f = 1MHz         0.9         Ω           ing Characteristics         Turn-On Delay Time         V <sub>DD</sub> = 15V, I <sub>D</sub> = 17A, V <sub>OS</sub> = 10V, Rorn = 6Ω         11         20         ns
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Forward Transconductance $V_{DD} = 10V, I_D = 17A$ 87Sic CharacteristicsInput Capacitance $V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$ 17452320pFOutput Capacitance $f = 1MHz$ 8601145pFReverse Transfer Capacitance $f = 1MHz$ 130195pFGate Resistance $f = 1MHz$ 0.9 $\Omega$ ing CharacteristicsTurn-On Delay Time $V_{DD} = 15V, I_D = 17A, V_{CS} = 10V, Roma = 6\Omega$
Dynamic CharacteristicsDynamic CharacteristicsDissInput Capacitance $V_{DS} = 15V, V_{GS} = 0V,$ 17452320pFDossOutput Capacitance $f = 1MHz$ 8601145pFDrssReverse Transfer Capacitance $f = 1MHz$ 0.9 $\Omega$ Reverse Transfer Capacitance $f = 1MHz$ 0.9 $\Omega$ RegGate Resistance $f = 1MHz$ 0.9 $\Omega$ Reverse Transfer Capacitance $f = 1MHz$ 0.9 $\Omega$ Multicity Turn-On Delay Time $f = 10MHz$ $0.9$ $\Omega$ $f = 1000$ Turn-Off Delay Time $V_{DD} = 15V, I_D = 17A, V_{GS} = 0V to 10V$ $V_{DD} = 15V, I_D = 15V, I_D = 17A, I_A = 0, I_D = 17A, I_A $	Dynamic Characteristics $C_{iss}$ Input Capacitance $V_{DS} = 15V, V_{GS} = 0V,$ $1745$ $2320$ $C_{oss}$ Output Capacitance $f = 1MHz$ $860$ $1145$ $C_{rss}$ Reverse Transfer Capacitance $f = 1MHz$ $130$ $195$ $R_g$ Gate Resistance $f = 1MHz$ $0.9$ $0.9$ Switching Characteristics $t_{d(on)}$ Turn-On Delay Time $V_{DD} = 15V, I_D = 17A,$ $11$ $20$ $t_{d(off)}$ Turn-Off Delay Time $V_{GS} = 10V, R_{GEN} = 6\Omega$ $26$ $42$	ic CharacteristicsInput Capacitance $V_{DS} = 15V, V_{GS} = 0V,$ 17452320pFOutput Capacitance $f = 1MHz$ 8601145pFReverse Transfer Capacitance $f = 1MHz$ 130195pFGate Resistance $f = 1MHz$ 0.9 $\Omega$ ing CharacteristicsTurn-On Delay Time $V_{DD} = 15V, I_D = 17A,$ Rise Time $V_{CD} = 10V, R_{CFN} = 6\Omega$ 1120
$\begin{array}{c c c c c c c c } \hline Pisc & Input Capacitance & \\ \hline Piss & Output Capacitance & \\ \hline Coss & Output Capacitance & \\ \hline Crss & Reverse Transfer Capacitance & \\ \hline f = 1MHz & \\ \hline 130 & 195 & pF \\ \hline r & Rise Time & \\ \hline r & Rise Time & \\ \hline r & Rise Time & \\ \hline d(off) & Turn-On Delay Time & \\ \hline r & Rise Time & \\ \hline d(off) & Turn-Off Delay Time & \\ \hline r & Fall Time & \\ \hline Ag & Total Gate Charge & \\ \hline Ag & Total Gate Charge & \\ \hline Ag & Gate to Source Charge & \\ \hline Ag & Gate to Source Charge & \\ \hline \end{array} \begin{array}{c} V_{DS} = 15V, V_{GS} = 0V, \\ f = 1MHz & \\ \hline V_{DD} = 15V, I_D = 17A, \\ V_{GS} = 10V, R_{GEN} = 6\Omega & \\ \hline \end{array} \begin{array}{c} 111 & 20 & ns \\ \hline 111 & 20 & ns \\ \hline 111 & 20 & ns \\ \hline 110 & ns \\$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{tabular}{ c c c c c c c c c c c c c c c c c c c$
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Output Capacitance $V_{DS} = 15V, V_{GS} = 0V,$ f = 1MHz8601145pFReverse Transfer Capacitancef = 1MHz130195pFGate Resistancef = 1MHz0.9 $\Omega$ ing CharacteristicsTurn-On Delay Time $V_{DD} = 15V, I_D = 17A,$ $V_{CC} = 10V, Rome = 6\Omega$ 1120ns
$z_{OSS}$ Output Capacitancef = 1MHz $above1145prz_{rss}Reverse Transfer Capacitancef = 1MHz130195pFR_gGate Resistancef = 1MHz0.9\OmegaSwitching Characteristicsd(on)Turn-On Delay TimeV_{DD} = 15V, I_D = 17A,1120nsrRise TimeV_{GS} = 10V, R_{GEN} = 6\Omega2642nsd(off)Turn-Off Delay TimeV_{GS} = 0V to 10V2637nCR_gTotal Gate ChargeV_{GS} = 0V to 5VV_{DD} = 15V, I_D = 17A,1420nCR_gTotal Gate ChargeV_{GS} = 0V to 5VV_{DD} = 15V, I_D = 17A,1420nCR_gGate to Source ChargeV_{GS} = 0V to 5VV_{DD} = 15V, I_D = 17A,1420nC$	$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Output Capacitancef = 1MHz6601145pFReverse Transfer Capacitancef = 1MHz130195pFGate Resistancef = 1MHz0.9 $\Omega$ ing CharacteristicsTurn-On Delay Time $V_{DD} = 15V, I_D = 17A,$ 1120nsRise Time $V_{CS} = 10V, R_{CFN} = 6\Omega$ 410ns
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Switching Characteristics $f = 1MHz$ 0.9Switching Characteristics $V_{DD} = 15V, I_D = 17A,$ 1120 $t_{d(off)}$ Turn-On Delay Time $V_{GS} = 10V, R_{GEN} = 6\Omega$ 2642 $t_{d(off)}$ Turn-Off Delay Time $V_{GS} = 10V, R_{GEN} = 6\Omega$ 102642	Gate Resistance         f = 1MHz         0.9         Ω           ing Characteristics         VDD = 15V, ID = 17A,         11         20         ns           Rise Time         VDD = 15V, ID = 17A,         4         10         ns
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	gTurn-On Delay TimeV_DD = 15V, ID = 17A, $t_{d(off)}$ Turn-Off Delay Time $V_{GS} = 10V, R_{GEN} = 6\Omega$ $t_{d(off)}$ Turn-Off Delay Time $26$ $t_{d(off)}$ Turn-Off Delay Time $26$	Turn-On Delay Time         V <sub>DD</sub> = 15V, I <sub>D</sub> = 17A,         11         20         ns           Rise Time         V <sub>DD</sub> = 15V, I <sub>D</sub> = 17A,         4         10         ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$t_{r} \qquad \text{Rise Time} \qquad \qquad V_{DD} = 15V, I_{D} = 17A, \\ V_{GS} = 10V, R_{GEN} = 6\Omega \qquad $	Rise Time $V_{DD} = 15V$ , $I_D = 17A$ ,410ns $V_{CC} = 10V$ , $R_{CCV} = 6Q$
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$\begin{array}{c c} & & & \\ \hline t_{d(off)} & $	$V_{CS} = 10V$ , $B_{CTN} = 60$
Fall Time310ns $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 10V$ $26$ $37$ nC $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ $14$ $20$ nC $Q_{gs}$ Gate to Source Charge $4.8$ nC		1 urn-Uri Delay Time 26 42 ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$Q_{c}$ Total Gate Charge $V_{CS} = 0V$ to $10V$ 26 37	
$R_{gs}$ Gate to Source Charge $I_D = 1/A$ $4.8$ nC	$Q_{-}$ Total Gate Charge $V_{OC} = 0V$ to 5V $V_{DD} = 15V$ , 14 20	
<u><u> </u></u>		Total Gate Charge $V_{00} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , 14 20 pC
Add Gate to Drain "Willier" Charge 13.5 nC	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
<u> </u>		Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge4.8nC
Vrain-Source Diode Characteristics	$V_{cc} = 0V_{cc} = 2.1A$ (Note 2) 0.7 1.2	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge4.8nCGate to Drain "Miller" Charge3.5nC
$V_{CS} = 0V_{LS} = 2.1A$ (Note 2) 0.7 1.2 V	$V_{SD}$ Source to Drain Diode Forward Voltage $V_{GS} = 0.7, S = 2.177$ (100 2) 0.1 1.2 $V_{GS} = 0.0, I_S = 17A$ 0.8 1.2	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source ChargeGate to Drain "Miller" Charge3.5nCSource Diode Characteristics
V <sub>GS</sub> = 0V, I <sub>S</sub> = 2.1A (Note 2) 0.7 1.2 V	t Reverse Recovery Time 40 64	Total Gate Charge         V <sub>GS</sub> = 0V to 5V         V <sub>DD</sub> = 15V, I <sub>D</sub> = 17A         14         20         nC           Gate to Source Charge         Gate to Drain "Miller" Charge         3.5         nC           Source Diode Characteristics         V <sub>GS</sub> = 0V, I <sub>S</sub> = 2.1A         (Note 2)         0.7         1.2         V
$\frac{V_{GS} = 0V, I_S = 2.1A  (Note 2)}{V_{GS} = 0V, I_S = 17A} \qquad \begin{array}{c c} 0.7 & 1.2 & V \\ \hline 0.8 & 1.2 & V \\ \hline 0.8 & 1.2 & V \\ \hline 0.8 & 0.8 & 0.8 \\ \hline 0.8 & 0.8 \\ \hline$	$Q_{rr}$ Reverse Recovery Charge $I_F = 17A$ , $dl/dt = 100A/\mu s$ 30 48	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source ChargeGate to Drain "Miller" Charge3.5nCSource Diode CharacteristicsSource to Drain Diode Forward Voltage $V_{GS} = 0V, I_S = 2.1A$ (Note 2)0.71.2V $V_{GS} = 0V, I_S = 17A$ 0.81.2VReverse Recovery Time4064ns
lgd Gate to Drain "Miller" Charge 3.5		Fall Time         26         42           Fall Time         3         10
vrain-Source Diode Characteristics		Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source ChargeGate to Drain "Miller" Charge3.5nC
		Total Gate Charge     V <sub>GS</sub> = 0V to 5V     V <sub>DD</sub> = 15V, I <sub>D</sub> = 17A     14     20     nC       Gate to Source Charge     3.5     nC       Gate to Drain "Miller" Charge     3.5     nC
V <sub>GS</sub> = 0V, I <sub>S</sub> = 2.1A (Note 2) 0.7 1.2 V	Reverse Recovery Time 40 64	Total Gate Charge         V <sub>GS</sub> = 0V to 5V         V <sub>DD</sub> = 15V, I <sub>D</sub> = 17A         14         20         nC           Gate to Source Charge         3.5         nC           Gate to Drain "Miller" Charge         3.5         nC
$\frac{V_{GS} = 0V, I_S = 2.1A  (Note 2)}{V_{GS} = 0V, I_S = 17A} \qquad \begin{array}{c c} 0.7 & 1.2 & V \\ \hline 0.8 & 1.2 & V \\ \hline 0.8 & 1.2 & V \\ \hline 0.8 & 0.8 & 0.8 \\ \hline 0.8 & 0.8 \\ \hline$	$l_{r} = 1/A$ , $dl/dt = 100A/us$	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source ChargeGate to Drain "Miller" Charge3.5nCSource Diode CharacteristicsSource to Drain Diode Forward Voltage $V_{GS} = 0V, I_S = 2.1A$ (Note 2)0.71.2V $V_{GS} = 0V, I_S = 17A$ 0.81.2VReverse Recovery Time4064ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	f Fall Time 3 10	ium-on Delay lime 26 42 ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	f Fall Time 3 10	1um-On Delay Time 26 42 ns
Fall Time310ns $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 10V$ $26$ $37$ nC $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ $14$ $20$ nC $Q_gs$ Gate to Source Charge $4.8$ nC		Iurn-On Delay Ilme 26 42 ns
Fall Time310ns $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 10V$ $26$ $37$ nC $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ $14$ $20$ nC $Q_gs$ Gate to Source Charge $4.8$ nC		וערח-טה Delay Ilme 26 42 ns
Fall Time310ns $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 10V$ $26$ $37$ nC $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ $14$ $20$ nC $Q_gs$ Gate to Source Charge $4.8$ nC		I um-Uit Delay Time 26 42 ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Fall Time   3   10   ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	0 Total Gate Charge $V_{car} = 0V$ to $10V$ 26 37	
$I_{D} = 17A$ $I_{D} = 17A$ $I_{D} = 17A$	V <sub>1</sub> 15V	$V_{aa} = 0V to 10V$
Ags Gate to Source Charge 4.8 nC		
<u><u> </u></u>		Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
n i i ste to Lirain "Miller" L'harde S. C. hC	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
And Gate to Drain "Miller" Charge IC	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Jaar Laate to Urain "Miller" Unarge 135 nC	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
n is ate to Urain "Miller" Linarde C.	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Jaar Laate to Urain "Miller" Unarge 135 nC	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Add Gate to Drain "Willier" Charge 13.5 nC	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Agd Gate to Drain "Miller" Charge 3.5 nC	Q <sub>gd</sub> Gate to Drain "Miller" Charge         3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Agd Gate to Drain "Miller" Unarge 3.5 nC	Qgd     Gate to Drain "Miller" Charge     3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Agd   Gate to Drain "Miller" Unarge 3.5 nC	Q <sub>gd</sub> Gate to Drain "Miller" Charge 3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge $A.8$ nC
lgd Gate to Drain "Miller" Unarge 3.5 nC	$Q_{gd}$ Gate to Drain "Miller" Charge 3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge $A.8$ nC
l <sub>gd</sub> Gate to Drain Miller Charge 3.5 IIC	agd Gate to Drain Miller Charge 3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge $A.8$ nC
l <sub>gd</sub> Gale to Dialit Miller Charge 5.5 Th	agd Gale to Drain Miller Charge 5.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge $A.8$ nC
ImageImageImageImageImageImageImageImageImage	Q <sub>gd</sub> Gate to Drain "Miller" Charge 3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
1. IL-ste to Lirsin "Miller" L'harde	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
<u><u> </u></u>	$V_{GS} = 0.0000$ lp = 17A	
$I_{D} = 17A$ $I_{D} = 17A$ $I_{D} = 17A$	V <sub>1</sub> 15V	$V_{ab} = (1)/t_{ab} + (1)/t_{ab} = (1)/t_{ab} + (1)/t_{ab} = (1)/t_{ab} + (1)/t_{ab} + (1)/t_{ab} = (1)/t_{ab} + (1)/t_{$
$I_{D} = 17A$ $I_{D} = 17A$ $I_{D} = 17A$		Total Gate Charge $V_{aa} = 0/(to 10)/$
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Q <sub>n</sub> Total Gate Charge         V <sub>GS</sub> = 0V to 10V         26         37	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$0 \qquad \text{Total Cate Charge} \qquad \qquad 1/2 = 0/2 \pm 10/2 \qquad \qquad 26 \qquad 27$	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$Q_{c}$ Total Gate Charge $V_{CS} = 0V$ to $10V$ 26 37	Total Gate Charge $V_{ca} = 0V(to 10V)$ 26 27 cC
$I_{D} = 17A$ $I_{D} = 17A$ $I_{D} = 17A$		Total Gate Charge $V_{ab} = 0 V_{ab} = 10 V_{ab}$
$I_{D} = 17A$ $I_{D} = 17A$ $I_{D} = 17A$	V <sub>1</sub> 15/	
$R_{gs}$ Gate to Source Charge $I_D = 1/A$ $4.8$ nC	$Q_{\rm r}$ Total Gate Charge $V_{\rm OC} = 0V$ to 5V $V_{\rm DD} = 15V$ , 14 20	$v_{\rm GS} = 0 v_{\rm IO} 10 v_{\rm IO}$ 20 37 IIC
<u><u> </u></u>	$V_{GS} = 0.0000$ lp = 17A	
<u><u> </u></u>		Total Gate Charge $V_{CC} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
		Total Gate Charge $V_{CC} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	$Q_{\rm gs}$ Gate to Source Charge 4.8	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	$Q_{qs}$ Gate to Source Charge 4.8 4.8	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
<u><u> </u></u>		Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	$Q_{qs}$ Gate to Source Charge 4.8 4.8	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
Cata ta Duaia (Mdillaw) Channa	Qgs   Gate to Source Charge   4.8	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
	Qgs   Gate to Source Charge     4.8	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
		Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
<u><u> </u></u>	$v_{g} = 17A$	
<u><u> </u></u>	$rac{1}{2}$	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
<u><u> </u></u>	3 ID = 1/A	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
		Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	$Q_{\rm gs}$ Gate to Source Charge 4.8 4.8	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
Cata ta Dusia (NAULA) Change	$Q_{gs}$ Gate to Source Charge 4.8	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	$Q_{gs}$ Gate to Source Charge 4.8 4.8	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	$Q_{gs}$ Gate to Source Charge 4.8 4.8	Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
Cate to Ducin (Mdillaw) Channel	Qgs   Gate to Source Charge     4.8	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Costa ta Ovala MAllaw Obavaa	Qgs   Gate to Source Charge     4.8	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Cata ta Ducia (Millar) Channa	Ags Gate to Source Charge 4.8	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
		Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
<u><u> </u></u>		Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
		Total Gate Charge $V_{OO} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	<u>5</u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Jaar Igare to Urain "Willer" Unarge 35 b	<u>5</u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
<u><u> </u></u>	$v_{g} = 17A$	
$I_{D} = 17A$ $I_{D} = 17A$ $I_{D} = 17A$	$\frac{1}{2}$	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$v_{g}$ Total Gate Charge $V_{GS} = 0V$ to $10V$ 26 37	Total Gate Charge $V_{ac} = 0V to 10V$ 26 27 cC
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	$V_{cs} = 0V$ to 10V 26 37	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	rail lime 3 10	
Fall Time310ns $h_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 10V$ $V_{DD} = 15V$ ,2637nC $h_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ ,1420nC $h_{gs}$ Gate to Source Charge4.8nC		ium-on Delay lime 26 42 ns
Fall Time310nsgTotal Gate Charge $V_{GS} = 0V \text{ to } 10V$ $26$ $37$ nCgTotal Gate Charge $V_{GS} = 0V \text{ to } 5V$ $I_D = 15V$ , $14$ $20$ nCgsGate to Source Charge $4.8$ nC		
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	off) Turn-Off Delay Time 26 42	
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	(off) Turn-Off Delay Time 26 42	
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	d(off) Turn-Off Delay Time 26 42	
Fall Time310ns $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 10V$ $26$ $37$ $nC$ $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ $14$ $20$ $nC$ $Q_{gs}$ Gate to Source Charge $4.8$ $nC$		
Fall Time310ns $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 10V$ $26$ $37$ $nC$ $Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ $14$ $20$ $nC$ $Q_{gs}$ Gate to Source Charge $4.8$ $nC$		1000-000 $26$ 42 ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	f Fall Time 3 10	Ium-Off Delay Time 26 42 ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Fall Time         3         10         ns
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $	Total Gate Charge $V_{GS} = 0V$ to $10V$ 26 37	Total Gate Charge $V_{car} = 0V to 10V$ 26 27 cc
$I_{gs} = 17A$ $I_{b} = 17A$ $I_{b} = 17A$ $I_{b} = 17A$	V <sub>1</sub> – 15/	$V_{ab} = 0 V_{bb} t_{ab} t_{$
$R_{gs}$ Gate to Source Charge $I_D = 1/A$ $4.8$ nC	$V_{DD} = 15V$ , $V_{DD} = 15V$ , $V_{DD} = 15V$ , $V_{DD} = 15V$ , $V_{DD} = 16V$	
Ags Gate to Source Charge 4.8 nC	$v_{g} = 17A$	
<u><u> </u></u>		Total Gate Charge $V_{CC} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
Cate to Ducin (Mdillaw) Channel	Ags Gate to Source Charge 4.8	Total Gate Charge $V_{GS} = 0V$ to $5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
) Cate to Ducin (Millow) Observe	$A_{gs}$ Gate to Source Charge $I_D = 1/A$ $4.8$	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
$R_{gs}$ Gate to Source Charge $I_D = 1/A$ $4.8$ ni	$Q_g$ Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 14 20	
<u><u> </u></u>	$r_{g}$ rotal cate charge $r_{gS} = 0.0000$ $r_{gS} = 17A$	
<u><u> </u></u>	$Q_{gs}$ Gate to Source Charge 4.8 4.8	Total Gate Charge $V_{CC} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
	Ags Gate to Source Charge 4.8	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
	<u></u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Jad Usate to Urain "Miller" Unarge nC	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
Agd Gate to Drain "Millier" Charge 3.5 nC	R <sub>gd</sub> Gate to Drain "Miller" Charge 3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge $A.8$ nC
Igd Gate to Drain Miller Charge 3.5 nC	Igd Gate to Drain Willer Charge 3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge $A.8$ nC
l <sub>gd</sub> Gate to Drain "Miller" Charge 3.5 nC	Agd Gate to Drain "Miller" Charge 3.5	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nCGate to Source Charge $A.8$ nC
	<u> </u>	Total Gate Charge $V_{GS} = 0V \text{ to } 5V$ $V_{DD} = 15V$ , $I_D = 17A$ 1420nC
<u>-</u>		Total Gate Charge $V_{CC} = 0V$ to 5V $V_{DD} = 15V$ , 14 20 pC
Ags Gate to Source Charge 4.8 nC	$r_{g}$ four date charge $r_{g}$ $r_{$	
$D_{gs}$ Gate to Source Charge $I_D = 1/A$ $4.8$ nC		
$I_{\text{gs}}$ Gate to Source Charge $I_{\text{D}} = 1/A$ $4.8$ nC	$V_{DD} = 15V$ , $V_{DD} = 15V$ , $V_{DD} = 15V$ , $V_{DD} = 15V$ , $V_{DD} = 16V$	$ v_{\rm GS} = 0 \ v_{\rm IO}   0 \ v_{\rm IO}   20   37   10$
$I_{\text{gs}} = 17A \qquad 1.4  2.0  1.6  1.6 $	V/15//	
$I_{gs} = 17A$ $I_{b} = 17A$ $I_{b} = 17A$ $I_{b} = 17A$	V <sub>1</sub> – 15/	
$I_{gs} = 0.000 \text{ Gale onlarge} = 0.000 \text{ Gg} = 0.000 \text{ Gg} = 17\text{A}$ $I_D = 17\text{A}$ $4.8 \text{ nC}$	V <sub></sub> - 15/	
l <sub>gs</sub> Gate to Source Charge 1 <sub>D</sub> = 1/A 4.8 nC	Total Gate Charge $V_{CC} = 0V$ to 5V $V_{DD} = 15V$ , 14 20	$v_{\rm GS} = 0 v_{\rm IO} 10 v_{\rm IO}$ 20 37 IIC

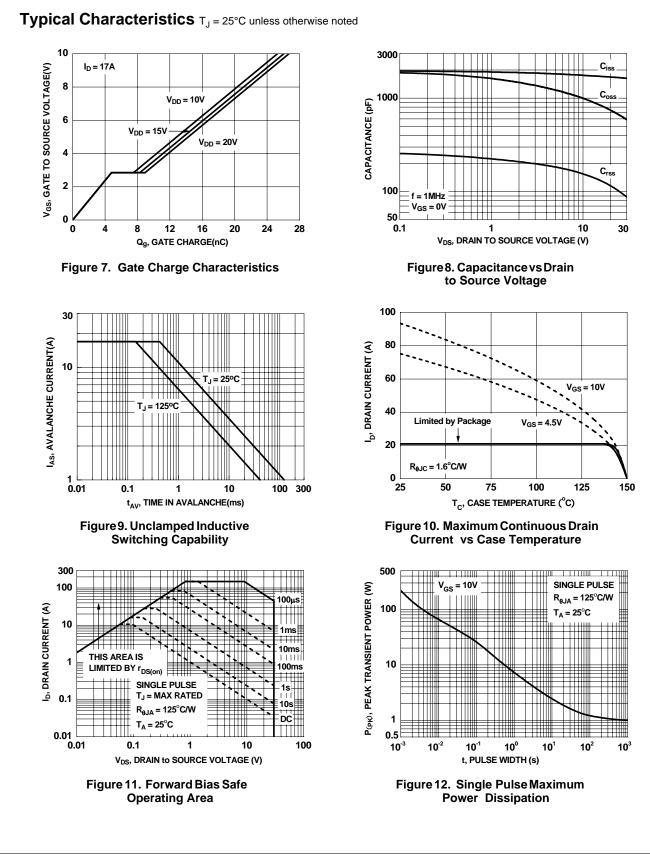
2. Pulse Test: Pulse Width < 300 $\mu$ s, Duty cycle < 2.0%. 3. Starting T\_J = 25°C, L = 3mH, I\_{AS} = 11A, V\_{DD} = 30V, V\_{GS} = 10V.

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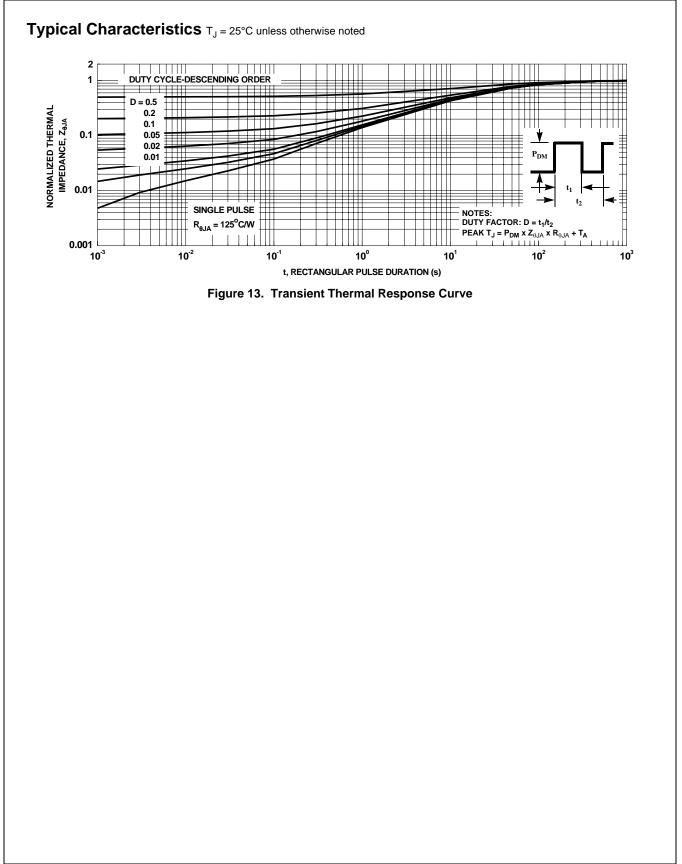


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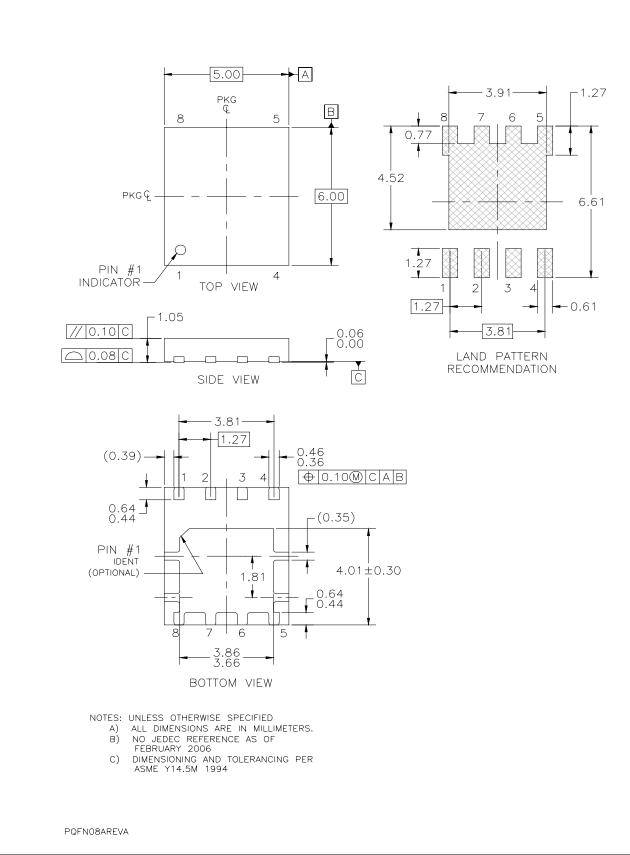


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