January 2006

FDS6673BZ P-Channel PowerTrench<sup>®</sup> MOSFET

## FAIRCHILD

SEMICONDUCTOR

# FDS6673BZ P-Channel PowerTrench<sup>®</sup> MOSFET -30V, -14.5A, 7.8mΩ

## **General Description**

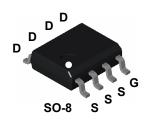
This P-Channel MOSFET is produced using Fairchild Semiconductor's advanced Power Trench process that has been especially tailored to minimize the on-state resistance.

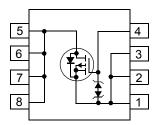
This device is well suited for Power Management and load switching applications common in Notebook Computers and Portable Battery Packs.

# ALL PREPARENT

## Features

- Max  $r_{DS(on)} = 7.8 m\Omega$ ,  $V_{GS} = -10V$ ,  $I_D = -14.5A$
- Max r<sub>DS(on)</sub> = 12mΩ, V<sub>GS</sub> = -4.5V, I<sub>D</sub> = -12A
- Extended V<sub>GS</sub> range (-25V) for battery applications
- HBM ESD protection level of 6.5kV typical (note 3)
- High performance trench technology for extremely low r<sub>DS(on)</sub>
- High power and current handling capability
- RoHS compliant





### **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		±25	V
1	Drain Current -Continuous (N	lote1a)	-14.5	Α
D	-Pulsed		-75	Α
	Power Dissipation for Single Operation (I	Note1a)	2.5	
P <sub>D</sub>	()	Note1b)	1.2	W
	(	Note1c)	1.0	
TJ, T <sub>STG</sub>	Operating and Storage Temperature		-55 to 150	°C

## **Thermal Characteristics**

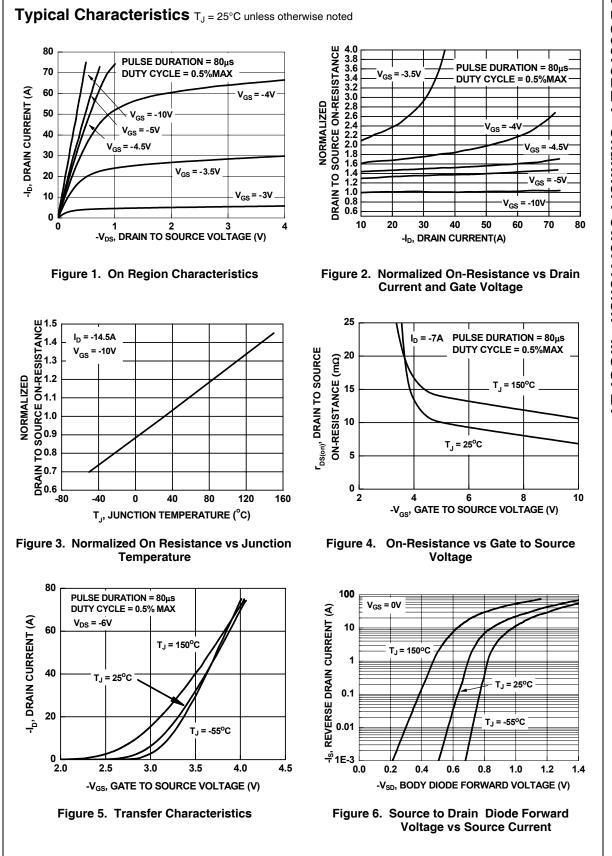
$R_{\thetaJA}$	Thermal Resistance, Junction to Ambient (Note 1a)	50	°C/W
$R_{ ext{ heta}JC}$	Thermal Resistance, Junction to Case (Note 1)	25	°C/W

## Package Marking and Ordering Information

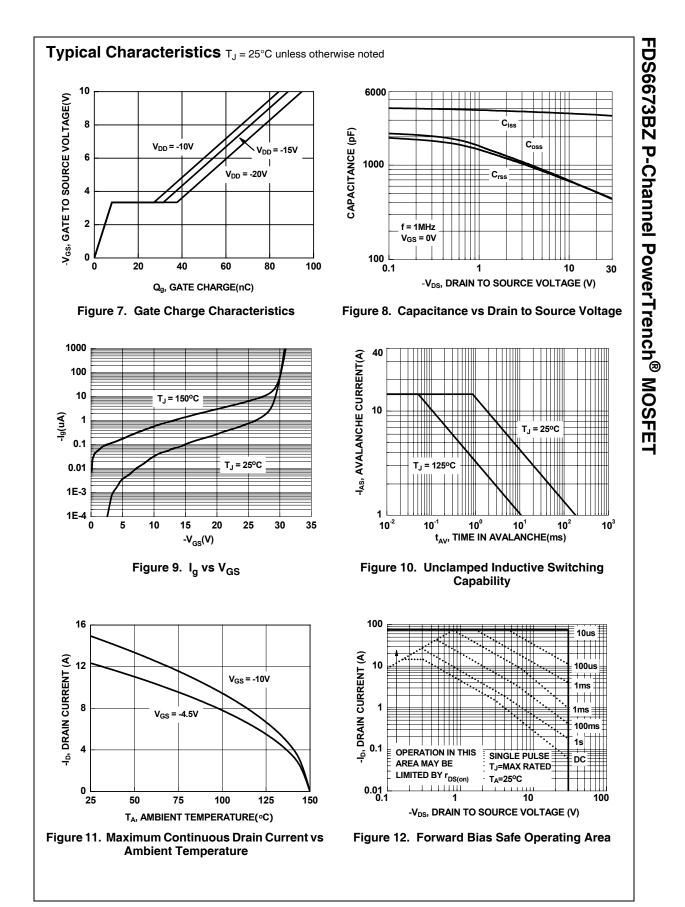
Device Marking	Device	Reel Size	Tape Width	Quantity
FDS6673BZ	FDS6673BZ	13"	12mm	2500 units

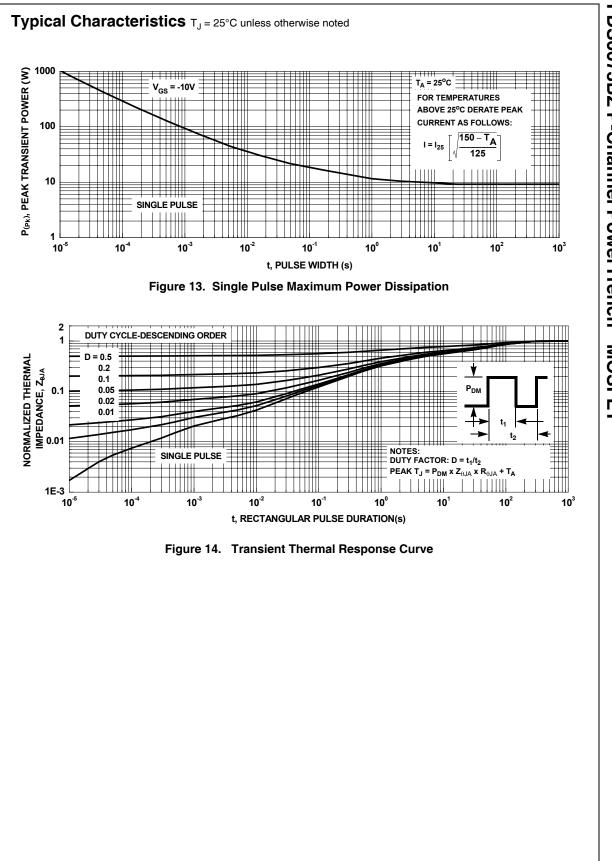
$\begin{array}{c} \Delta B_{VDSS} \\ \Delta T_J \\ \Delta $	o Source Breakdown Voltage down Voltage Temperature diate Voltage Drain Current o Source Leakage Current <b>ics (Note 2)</b> o Source Threshold Voltage o Source Threshold Voltage orature Coefficient o Source On Resistance of Transconductance <b>cteristics</b> Capacitance Capacitance capacita	$\begin{split} & I_{D} = -250 \mu A, V_{GS} = 0V \\ & I_{D} = -250 \mu A, referenced to \\ & 25^{\circ}C \\ & V_{DS} = -24V, V_{GS} = 0V \\ & V_{GS} = \pm 25V, V_{DS} = 0V \\ & V_{GS} = \pm 25V, V_{DS} = 0V \\ & V_{GS} = -250 \mu A, referenced to \\ & 25^{\circ}C \\ & V_{GS} = -10V, I_{D} = -14.5A \\ & V_{GS} = -10V, I_{D} = -14.5A \\ & V_{GS} = -10V, I_{D} = -14.5A \\ & V_{DS} = -5V, I_{D} = -14.5A \\ & V_{DS} = -5V, I_{D} = -14.5A \\ & V_{DS} = -5V, I_{D} = -14.5A \\ & V_{DS} = -15V, V_{GS} = 0V, \\ & f = 1.0MHz \\ & V_{DD} = -15V, I_{D} = -1A \\ & V_{DS} = -15V, I_{D} = -1A \\ & V_{DS} = -15V, I_{D} = -1A \\ & V_{DS} = -10V, I_{D} = -1A \\ & V_{DS} = -15V, I_{D} = -1A \\ & V_{DS} = -15V, I_{D} = -1A \\ & V_{DS} = -10V, I_{D} = -10V \\ & V_{D} = -10V, I_{D} = -10V \\ & V_{D} = -10V, I_{D} = -10V \\ & V_{D} = -10V$	-30 1	-20 -1.9 8.1 6.5 9.6 9.7 60 3500 600 600	-1 ±10 -3 7.8 12 12 12 4700 800 900	V           mV/°C           μA           μA           MV/°C           mV/°C           mQ/°C           mQ           S           pF           pF           pF           pF
$\begin{array}{c} \Delta B_{VDSS} \\ \overline{\Delta T_J} \\ \end{array} \\ \begin{array}{c} Breakc \\ \overline{\Delta T_J} \\ \end{array} \\ \begin{array}{c} Breakc \\ Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \overline{\Delta T_J} \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \begin{array}{c} Coeffic \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array} \\ \end{array}$	Iown Voltage Temperature iate Voltage Drain Current o Source Leakage Current ics (Note 2) o Source Threshold Voltage o Source Threshold Voltage orature Coefficient o Source On Resistance of Transconductance cteristics Capacitance capacitance orational Capacitance capacitance capacitance capacitance capacitance capacitance comparison Capacitance capacitance comparison Capacitance capacitance comparison Capacitance capacitance comparison Capacitance capacitance capacitance comparison Capacitance capacitance capacitance comparison Capacitance capacitance comparison Capacitance capacitance capacitance comparison Capacitance capacitanc capacitance capacitance capacitance capacitance capacitance cap	$\begin{split} & V_{DS} = -250 \mu A, \text{ referenced to} \\ & 25^{\circ} C \\ & V_{DS} = -24 V, V_{GS} = 0 V \\ & V_{GS} = \pm 25 V, V_{DS} = 0 V \\ & V_{GS} = \pm 25 V, V_{DS} = 0 V \\ & V_{GS} = -250 \mu A, \text{ referenced to} \\ & 1_D = -250 \mu A, \text{ referenced to} \\ & 25^{\circ} C \\ & V_{GS} = -10 V, I_D = -14.5 A \\ & V_{GS} = -10 V, I_D = -12 A \\ & V_{GS} = -10 V, I_D = -14.5 A \\ & T_J = 125^{\circ} C \\ & V_{DS} = -5 V, I_D = -14.5 A \\ & V_{DS} = -5 V, I_D = -14.5 A \\ & V_{DS} = -15 V, V_{GS} = 0 V, \\ & f = 1.0 MHz \\ & V_{DD} = -15 V, I_D = -1 A \\ \end{split}$		-1.9 8.1 6.5 9.6 9.7 60 3500 600 600	±10 -3 7.8 12 12 12 4700 800	mV/°C μA μA V mV/°C mΩ S pF pF
$\begin{array}{c c} \Delta B_{VDSS} \\ \overline{\Delta T_J} \\ \hline \\ Coefficient \\ Coeffic$	tient ate Voltage Drain Current o Source Leakage Current iCS (Note 2) o Source Threshold Voltage o Source Threshold Voltage orature Coefficient o Source On Resistance o Source On Resistance cteristics Capacitance Capacitance capacitance capacitance capacitance capacitance capacitance capacitance capacitance compacitance capacitance capacitance capacitance capacitance capacitance capacitance capacitance capacitance capacitance compacitance capacitance	$\begin{split} & V_{DS} = -250 \mu A, \text{ referenced to} \\ & 25^{\circ} C \\ & V_{DS} = -24 V, V_{GS} = 0 V \\ & V_{GS} = \pm 25 V, V_{DS} = 0 V \\ & V_{GS} = \pm 25 V, V_{DS} = 0 V \\ & V_{GS} = -250 \mu A, \text{ referenced to} \\ & 1_D = -250 \mu A, \text{ referenced to} \\ & 25^{\circ} C \\ & V_{GS} = -10 V, I_D = -14.5 A \\ & V_{GS} = -10 V, I_D = -12 A \\ & V_{GS} = -10 V, I_D = -14.5 A \\ & T_J = 125^{\circ} C \\ & V_{DS} = -5 V, I_D = -14.5 A \\ & V_{DS} = -5 V, I_D = -14.5 A \\ & V_{DS} = -15 V, V_{GS} = 0 V, \\ & f = 1.0 MHz \\ & V_{DD} = -15 V, I_D = -1 A \\ \end{split}$	1	-1.9 8.1 6.5 9.6 9.7 60 3500 600 600	±10 -3 7.8 12 12 12 4700 800	μΑ μΑ V mV/°C mΩ S pF
$J_{DSS}$ Zero G $J_{QSS}$ Gate to $J_{QSS}$ Gate to $\Delta V_{GS(th)}$ Gate to $\Delta V_{GS(th)}$ Gate to $\Delta T_J$ Tempe $r_{DS(on)}$ Drain to $g_{FS}$ Forward <b>Dynamic Charao</b> Ciss         Ciss       Input O $C_{rss}$ Reverse <b>Switching Chara</b> trun-O $t_{d(on)}$ Turn-O $t_{d_{q}}$ Total O $Q_g$ Total O $Q_{gs}$ Gate to $Q_{gd}$ Gate to	iate Voltage Drain Current o Source Leakage Current iCS (Note 2) o Source Threshold Voltage o Source Threshold Voltage orature Coefficient o Source On Resistance rd Transconductance cteristics Capacitance Capacitance o E Transfer Capacitance acteristics (Note 2) on Delay Time ime	$V_{GS} = \pm 25V, V_{DS} = 0V$ $V_{GS} = V_{DS}, I_D = -250\mu A$ $I_D = -250\mu A, referenced to 25°C$ $V_{GS} = -10V, I_D = -14.5A$ $V_{GS} = -10V, I_D = -12A$ $V_{GS} = -10V, I_D = -14.5A$ $T_J = 125°C$ $V_{DS} = -5V, I_D = -14.5A$ $V_{DS} = -5V, I_D = -14.5A$ $V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz$	1	8.1 6.5 9.6 9.7 60 3500 600 600	±10 -3 7.8 12 12 12 4700 800	μΑ V mV/°C mΩ S pF pF
$\Box_{GSS}$ Gate to $Dn$ Characterist $V_{GS(th)}$ Gate to $\Delta V_{GS(th)}$ Gate to $\Delta T_J$ Tempe $r_{DS(on)}$ Drain to $g_{FS}$ Forward <b>Dynamic Charac</b> Coss <b>Output</b> Crss <b>Switching Charac</b> td(on) $t_{d(on)}$ Turn-O $t_{d(off)}$ Turn-O $t_{d(off)}$ Total O $Q_g$ Total O $Q_{gs}$ Gate to $Q_{gd}$ Total O $Q_{gd}$ Gate to	<ul> <li>Source Leakage Current</li> <li>ics (Note 2)</li> <li>Source Threshold Voltage</li> <li>Source Threshold Voltage</li> <li>Source Threshold Voltage</li> <li>Source On Resistance</li> <li>Source On Resistance</li> <li>Capacitance</li> <li>Capacitance</li> <li>Capacitance</li> <li>Source Transfer Capacitance</li> <li>Capacitance</li> <l< td=""><td><math display="block">V_{GS} = \pm 25V, V_{DS} = 0V</math> <math display="block">V_{GS} = V_{DS}, I_D = -250\mu A</math> <math display="block">I_D = -250\mu A, referenced to 25°C</math> <math display="block">V_{GS} = -10V, I_D = -14.5A</math> <math display="block">V_{GS} = -10V, I_D = -12A</math> <math display="block">V_{GS} = -10V, I_D = -14.5A</math> <math display="block">T_J = 125°C</math> <math display="block">V_{DS} = -5V, I_D = -14.5A</math> <math display="block">V_{DS} = -5V, I_D = -14.5A</math> <math display="block">V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz</math></td><td></td><td>8.1 6.5 9.6 9.7 60 3500 600 600</td><td>-3 7.8 12 12 12 4700 800</td><td>V mV/°C mΩ S pF pF</td></l<></ul>	$V_{GS} = \pm 25V, V_{DS} = 0V$ $V_{GS} = V_{DS}, I_D = -250\mu A$ $I_D = -250\mu A, referenced to 25°C$ $V_{GS} = -10V, I_D = -14.5A$ $V_{GS} = -10V, I_D = -12A$ $V_{GS} = -10V, I_D = -14.5A$ $T_J = 125°C$ $V_{DS} = -5V, I_D = -14.5A$ $V_{DS} = -5V, I_D = -14.5A$ $V_{DS} = -15V, V_{GS} = 0V, f = 1.0MHz$		8.1 6.5 9.6 9.7 60 3500 600 600	-3 7.8 12 12 12 4700 800	V mV/°C mΩ S pF pF
$\begin{array}{c c} \textbf{Dn Characterist} \\ \hline \textbf{V}_{GS(th)} & \textbf{Gate to} \\ \hline \Delta \textbf{V}_{GS(th)} & \textbf{Gate to} \\ \hline \Delta \textbf{T}_{J} & \textbf{Tempe} \\ \hline \textbf{T}_{DS(on)} & \textbf{Drain t} \\ \hline \textbf{g}_{FS} & \textbf{Forwal} \\ \hline \textbf{Dynamic Charac} \\ \hline \textbf{C}_{iss} & \textbf{Input C} \\ \hline \textbf{C}_{oss} & \textbf{Output} \\ \hline \textbf{C}_{rss} & \textbf{Revers} \\ \hline \textbf{Switching Charac} \\ \hline \textbf{t}_{d(on)} & \textbf{Turn-C} \\ \hline \textbf{t}_r & \textbf{Rise T} \\ \hline \textbf{t}_{d(off)} & \textbf{Turn-C} \\ \hline \textbf{t}_r & \textbf{Fall Tin} \\ \hline \textbf{Q}_g & \textbf{Total C} \\ \hline \textbf{Q}_{gs} & \textbf{Gate to} \\ \hline \textbf{Q}_{gd} & \textbf{C}_{gd} & \textbf{C}_{gd} & \textbf{C}_{gd} \\ \hline \textbf{Q}_{gd} & \textbf{C}_{gd} & \textbf{C}_{gd} & \textbf{C}_{gd} & \textbf{C}_{gd} & \textbf{C}_{gd} \\ \hline \textbf{Q}_{gd} & \textbf{C}_{gd} & $	b Source Threshold Voltage     b Source Threshold Voltage erature Coefficient     o Source On Resistance     d Transconductance     cteristics     Capacitance     Capacitance     e Transfer Capacitance     acteristics (Note 2)     on Delay Time     ime	$V_{GS} = V_{DS}, I_D = -250\mu A$ $I_D = -250\mu A, referenced to$ $25^{\circ}C$ $V_{GS} = -10V, I_D = -14.5A$ $V_{GS} = -4.5V, I_D = -12A$ $V_{GS} = -10V, I_D = -14.5A$ $T_J = 125^{\circ}C$ $V_{DS} = -5V, I_D = -14.5A$ $V_{DS} = -5V, I_D = -14.5A$ $V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$		8.1 6.5 9.6 9.7 60 3500 600 600	7.8 12 12 4700 800	mV/°C mΩ S pF pF
$\begin{array}{c c} V_{GS(th)} & Gate to \\ \hline \Delta V_{GS(th)} & Gate to \\ \hline \Delta T_J & Tempe \\ \hline \\ \sigma_{TDS(on)} & Drain t \\ \hline \\ g_{FS} & Forwar \\ \hline \\ $	b Source Threshold Voltage     b Source Threshold Voltage erature Coefficient     o Source On Resistance     d Transconductance     cteristics     Capacitance     Capacitance     e Transfer Capacitance     acteristics (Note 2)     on Delay Time     ime	$\begin{split} & I_{D} = -250 \mu \text{A}, \text{ referenced to} \\ & 25^{\circ}\text{C} \\ & V_{GS} = -10\text{V}, I_{D} = -14.5\text{A} \\ & V_{GS} = -4.5\text{V}, I_{D} = -12\text{A} \\ & V_{GS} = -10\text{V}, I_{D} = -14.5\text{A} \\ & T_{J} = 125^{\circ}\text{C} \\ & V_{DS} = -5\text{V}, I_{D} = -14.5\text{A} \\ & \\ & V_{DS} = -5\text{V}, V_{GS} = 0\text{V}, \\ & f = 1.0\text{MHz} \\ & \\ & V_{DD} = -15\text{V}, I_{D} = -1\text{A} \end{split}$		8.1 6.5 9.6 9.7 60 3500 600 600	7.8 12 12 4700 800	mV/°C mΩ S pF pF
$\begin{array}{c} \overline{\Delta V_{GS(th)}} \\ \overline{\Delta T_J} \\ \hline \\ \overline{\Delta T_J} \\ \hline \\ \hline \\ T_{CDS(on)} \\ \hline \\ \hline \\ T_{CDS(on)} \\ \hline \\ \hline \\ T_{TDS(on)} \\ \hline \\ \hline \\ \hline \\ T_{TDS(on)} \\ \hline \\ \hline \\ \hline \\ T_{TDS(on)} \\ \hline \\ $	o Source Threshold Voltage rature Coefficient o Source On Resistance rd Transconductance <b>Cteristics</b> Capacitance Capacitance se Transfer Capacitance <b>acteristics (Note 2)</b> On Delay Time ime	$\begin{split} & I_{D} = -250 \mu \text{A}, \text{ referenced to} \\ & 25^{\circ}\text{C} \\ & V_{GS} = -10\text{V}, I_{D} = -14.5\text{A} \\ & V_{GS} = -4.5\text{V}, I_{D} = -12\text{A} \\ & V_{GS} = -10\text{V}, I_{D} = -14.5\text{A} \\ & T_{J} = 125^{\circ}\text{C} \\ & V_{DS} = -5\text{V}, I_{D} = -14.5\text{A} \\ & \\ & V_{DS} = -5\text{V}, V_{GS} = 0\text{V}, \\ & f = 1.0\text{MHz} \\ & \\ & V_{DD} = -15\text{V}, I_{D} = -1\text{A} \end{split}$		6.5 9.6 9.7 60 3500 600 600	12 12 4700 800	mΩ S PF pF
$\begin{array}{c c} & \Delta T_{J} & Tempe \\ \hline & \Delta T_{J} & Tempe \\ \hline \\ r_{DS(on)} & Drain t \\ \hline \\ g_{FS} & Forware \\ \hline \\ $	erature Coefficient o Source On Resistance rd Transconductance <b>Cteristics</b> Capacitance Capacitance e Transfer Capacitance <b>acteristics (Note 2)</b> On Delay Time ime	$\begin{array}{c} 25^{\circ}\text{C} \\ \hline V_{\text{GS}} = -10\text{V} , \text{I}_{\text{D}} = -14.5\text{A} \\ \hline V_{\text{GS}} = -4.5\text{V} , \text{I}_{\text{D}} = -12\text{A} \\ \hline V_{\text{GS}} = -10\text{V} , \text{I}_{\text{D}} = -14.5\text{A} \\ \hline T_{\text{J}} = 125^{\circ}\text{C} \\ \hline V_{\text{DS}} = -5\text{V} , \text{I}_{\text{D}} = -14.5\text{A} \\ \hline \end{array}$		6.5 9.6 9.7 60 3500 600 600	12 12 4700 800	mΩ S PF pF
Solution         Forward           9FS         Forward           Oynamic Charae         Ciss           Ciss         Input C           Crss         Output           Crss         Reverse           Switching Charae         Charae           td(on)         Turn-C           tr         Rise T           td(off)         Turn-C           tr         Fall Tin           Qg         Total C           Qg         Gate to           Qgd         Gate to	rd Transconductance cteristics Capacitance Capacitance se Transfer Capacitance acteristics (Note 2) on Delay Time ime	$V_{GS} = -4.5V, I_D = -12A$ $V_{GS} = -10V, I_D = -14.5A$ $T_J = 125^{\circ}C$ $V_{DS} = -5V, I_D = -14.5A$ $V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$ $V_{DD} = -15V, I_D = -1A$		9.6 9.7 60 3500 600 600	12 12 4700 800	PF pF
Solution         Forward           9FS         Forward           Oynamic Charae         Ciss           Ciss         Input C           Crss         Output           Crss         Reverse           Switching Charae         Charae           td(on)         Turn-C           tr         Rise T           td(off)         Turn-C           tr         Fall Tin           Qg         Total C           Qg         Gate to           Qgd         Gate to	rd Transconductance cteristics Capacitance Capacitance se Transfer Capacitance acteristics (Note 2) on Delay Time ime	$V_{GS} = -10V, I_{D} = -14.5A$ $T_{J} = 125^{\circ}C$ $V_{DS} = -5V, I_{D} = -14.5A$ $V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$ $V_{DD} = -15V, I_{D} = -1A$		9.7 60 3500 600 600	12 4700 800	PF pF
$\begin{array}{c c} \hline \\ \hline $	rd Transconductance cteristics Capacitance Capacitance se Transfer Capacitance acteristics (Note 2) on Delay Time ime	$T_{J} = 125^{\circ}C$ $V_{DS} = -5V, I_{D} = -14.5A$ $V_{DS} = -15V, V_{GS} = 0V,$ $f = 1.0MHz$ $V_{DD} = -15V, I_{D} = -1A$		60 3500 600 600	4700 800	PF pF
Oynamic Charac $C_{iss}$ Input C $C_{oss}$ Output $C_{rss}$ Revers         Switching Charac $t_{d(on)}$ Turn-C $t_{d(off)}$ Turn-C $t_{f}$ Fall Tin $Q_g$ Total C $Q_{gs}$ Gate to $Q_{gd}$ Gate to	cteristics Capacitance Capacitance se Transfer Capacitance acteristics (Note 2) On Delay Time ime	$V_{DS} = -15V, V_{GS} = 0V,$ f = 1.0MHz $V_{DD} = -15V, I_D = -1A$		3500 600 600	800	pF pF
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	Capacitance Capacitance Se Transfer Capacitance Acteristics (Note 2) On Delay Time ime	f = 1.0MHz		600 600	800	pF
Coss         Output           Crss         Revers           Switching Chara         Revers           t <sub>d(on)</sub> Turn-C           t <sub>r</sub> Rise T           t <sub>d(off)</sub> Turn-C           q <sub>g</sub> Total C           Q <sub>g</sub> Gate to           Q <sub>gd</sub> Gate to	Capacitance se Transfer Capacitance acteristics (Note 2) on Delay Time ime	f = 1.0MHz		600 600	800	pF
$\begin{array}{c c} C_{oss} & Output\\ \hline C_{rss} & Revers\\ \hline \hline Switching Chara\\ \hline t_{d(on)} & Turn-C\\ \hline t_r & Rise T\\ \hline t_{d(off)} & Turn-C\\ \hline t_f & Fall Tir\\ \hline Q_g & Total C\\ \hline Q_{gs} & Gate to\\ \hline Q_{gd} & Gate to\\ \hline \end{array}$	se Transfer Capacitance acteristics (Note 2) On Delay Time ime	f = 1.0MHz		600		
Crss         Reverse           Switching Chara           t <sub>d(on)</sub> Turn-C           t <sub>r</sub> Rise T           t <sub>d(off)</sub> Turn-C           t <sub>g</sub> Fall Tir           Q <sub>g</sub> Total C           Q <sub>gs</sub> Gate to           Q <sub>gd</sub> Gate to	acteristics (Note 2) On Delay Time ime	V <sub>DD</sub> = -15V, I <sub>D</sub> = -1A			900	pF
$t_{d(on)}$ Turn-C $t_r$ Rise T $t_{d(off)}$ Turn-C $t_f$ Fall Tin $Q_g$ Total C $Q_{gs}$ Gate to $Q_{gd}$ Gate to	on Delay Time ime			14		
$t_{d(on)}$ Turn-C $t_r$ Rise T $t_{d(off)}$ Turn-C $t_f$ Fall Tin $Q_g$ Total C $Q_{gs}$ Gate to $Q_{gd}$ Gate to	on Delay Time ime			14		
tr         Rise T           td <sub>(off)</sub> Turn-C           tf         Fall Tir           Qg         Total C           Qg         Total C           Qgs         Gate to           Qgd         Gate to	-			17	26	ns
${f R}_{f}$ Fall Tir ${f Q}_{g}$ Total C ${f Q}_{g}$ Total C ${f Q}_{gs}$ Gate to ${f Q}_{gd}$ Gate to	Aff Dalay Time	- Vec = -10V Bec = 60		16	29	ns
t <sub>f</sub> Fall Tir Q <sub>g</sub> Total C Q <sub>g</sub> Total C Q <sub>gs</sub> Gate to Q <sub>gd</sub> Gate to	Off Delay Time	$-V_{GS} = -10V, R_{GS} = 6\Omega$		225	36	ns
Q <sub>g</sub> Total C Q <sub>gs</sub> Gate to Q <sub>gd</sub> Gate to	ne			105	167	ns
Q <sub>gs</sub> Gate to Q <sub>gd</sub> Gate to	Bate Charge	$V_{DS} = -15V, V_{GS} = -10V, I_{D} = -14.5A$		88	124	nC
Q <sub>gd</sub> Gate to	Bate Charge			46	65	nC
gu	o Source Gate Charge	— V <sub>DS</sub> = -15V, V <sub>GS</sub> = -5V, — I <sub>D</sub> = -14.5A		8		nC
Drain Source Di	Drain Charge			23.5		nC
Jiam-Source D	ode Characteristics					
V <sub>SD</sub> Source	e to Drain Diode Forward Voltag	e V <sub>GS</sub> = 0V, I <sub>S</sub> = -2.1A		-0.7	-1.2	V
t <sub>rr</sub> Revers	se Recovery Time	I <sub>F</sub> = 14.5A, di/dt = 100A/μs			45	ns
Q <sub>rr</sub> Revers	se Recovery Charge	$I_F = 14.5A$ , di/dt = 100A/µs			34	nC
	nction-to-case and case-to-ambient thermal nteed by design while R <sub>9CA</sub> is determined a) 50 °C/W (10 sec) when mounted on a 1 in <sup>2</sup> pad of 2 oz copper	b) 105 °C/W when mounted on a .04 in <sup>2</sup> pad of 2 oz copper	ce is defined	c) 125 °C/	r mounting : W when mo	
Scale 1 : 1 on letter siz	ze paper					
<ol> <li>Pulse Test: Pulse Width</li> <li>The diode connected be</li> </ol>						

FDS6673BZ P-Channel PowerTrench<sup>®</sup> MOSFET











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