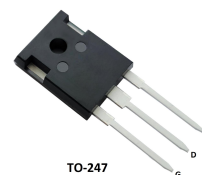


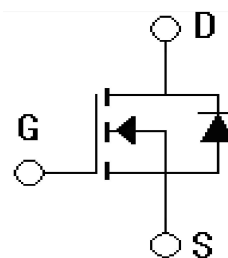
Features

- Advanced Process Technology
- Dynamic dv/dt Rating
- 175°C Operating Temperature
- Fast Switching
- Fully Avalanche Rated
- Ease of Paralleling
- Simple Drive Requirements



Applications

- High efficiency switch mode Power supplies



Absolute Ratings (Tc=25°C)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V _{DSS}	200	V
Drain Current -continuous	I _D , T=25°C T=100°C	50	A
		35	A
Drain Current - pulse (note 1)	I _{DM}	200	A
Gate-Source Voltage	V _{GSS}	±20	V
Single Pulsed Avalanche Energy (note 2)	E _{AS}	560	mJ
Avalanche Current (note 1)	I _{AR}	50	A
Repetitive Avalanche Current (note 1)	E _{AR}	30	mJ
Peak Diode Recovery dv/dt (note 3)	dv/dt	10	V/ns
Power Dissipation	PD TC=25°C -Derate above 25°C	300	W
		2.0	W/°C
Operating and Storage Temperature Range	T _J , T _{STG}	-55~+175	°C
Maximum Lead Temperature for Soldering Purposes	T _L	300	°C

*Drain current limited by maximum junction temperature

Electrical Characteristics($T_{CASE}=25^{\circ}C$ unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Type	Max	Units
Off-Characteristics						
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	200	-	-	V
Breakdown Voltage Temperature Coefficient	$\Delta BV_{DSS} / \Delta T_J$	$I_D=1mA$, referenced to $25^{\circ}C$	-	0.26	-	V/ $^{\circ}C$
Drain cut-off current	I_{DSS}	$V_{DS}=200V, V_{GS}=0V$ $T_j=25^{\circ}C$	-	-	25	μA
		$V_{DS}=160V, T_j=150^{\circ}C$	-	-	250	
Gate-body leakage current, forward	I_{GSSF}	$V_{DS}=0V, V_{GS}=20V$	-	-	100	nA
Gate-body leakage current, reverse	I_{GSSR}	$V_{DS}=0V, V_{GS}=-20V$	-	-	-100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	2.0	-	4.0	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=10V, I_D=28A$ (note 3)	-	-	0.04	Ω
Forward Transconductance	g_{fs}	$V_{DS}=50V, I_D=28A$ (note 3)	27	-	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS}=25V,$ $V_{GS}=0V,$ $f=1.0MHZ$	-	4057	-	pF
Output capacitance	C_{oss}		-	603	-	pF
Reverse transfer capacitance	C_{rss}		-	161	-	pF

Switching Characteristics						
Turn-On delay time	$t_{d(on)}$	$V_{DD}=100V, I_D=28A,$ $R_G=1.8\Omega,$ $V_{GS}=10V$ (note 4,5)	-	17	-	ns
Turn-On rise time	t_r		-	60	-	ns
Turn-Off delay time	$T_{d(off)}$		-	55	-	ns
Turn-Off Fall time	t_f		-	48	-	ns
Total Gate Charge	Q_g	$V_{DS}=160V,$ $I_D=28A,$ $V_{GS}=10V$ (note4,5)	-	-	234	nC
Gate-Source charge	Q_{gs}		-	-	38	nC
Gate-Drain charge	Q_{gd}		-	-	110	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V_{SD}	$V_{GS}=0V, I_S=28A$ (note 3)	-	-	1.3	V

Maximum Continuous Drain-Source Diode Forward Current	I_S		-	-	50	A
Maximum Pulsed Drain-Source Diode Forward Current	I_{SM}		-	-	200	A
Reverse recovery time	t_{rr}	VGS=0V,IF=28A dIF/dt=100A/us(note 3)	-	268	402	ns
Reverse recovery charge	Q _{rr}		-	1.9	2.8	uC

Thermal Characteristic

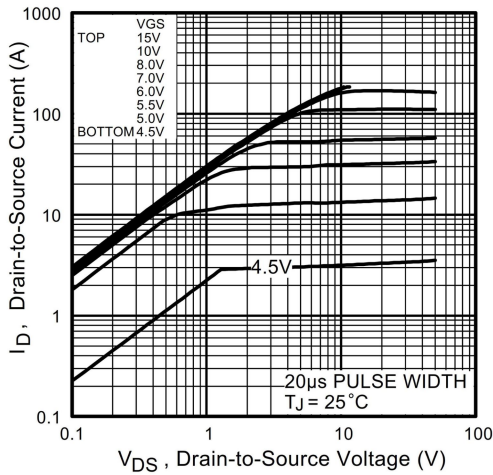
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.5	°C/W
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	40	°C/W

Notes:

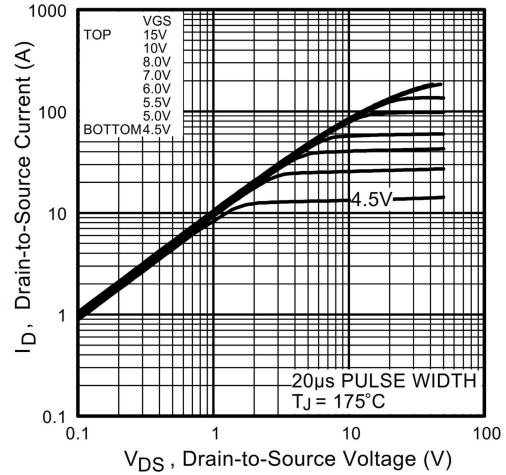
- 1: Repetitive rating; pulse width limited by max. junction temperature
- 2: Starting $T_J = 25^\circ\text{C}$, $L = 1.5\text{mH}$ $R_G = 25\Omega$, $I_{AS} = 28\text{A}$.
- 3: $I_{SD} \leq 28\text{A}$, $di/dt \leq 486\text{A}/\mu\text{s}$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 175^\circ\text{C}$
- 4: Pulse Test: Pulse Width $\leq 400\mu\text{s}$, Duty Cycle $\leq 2\%$
- 5: Essentially independent of operating temperature

Electrical Characteristics

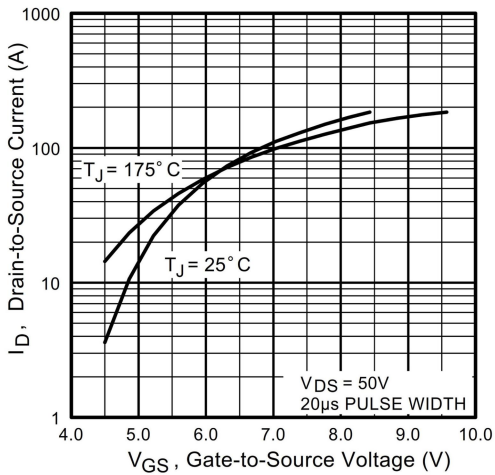
Typical Output Characteristics



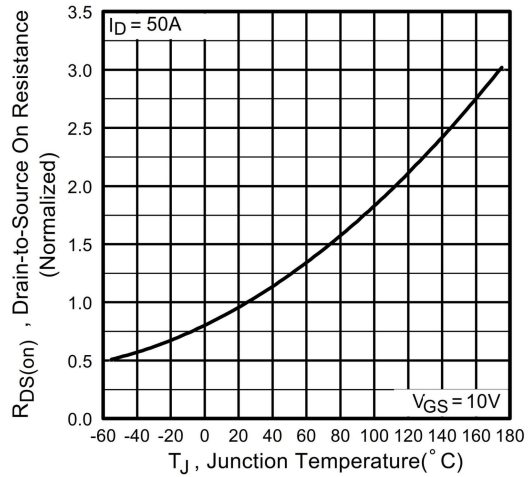
Typical Output Characteristics



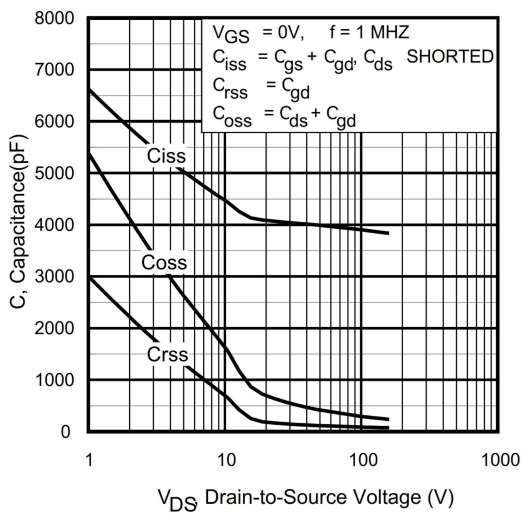
Typical Transfer Characteristics



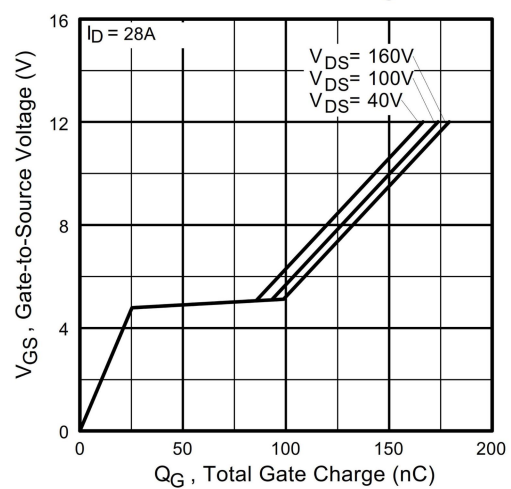
Normalized On-Resistance Vs. Temperature



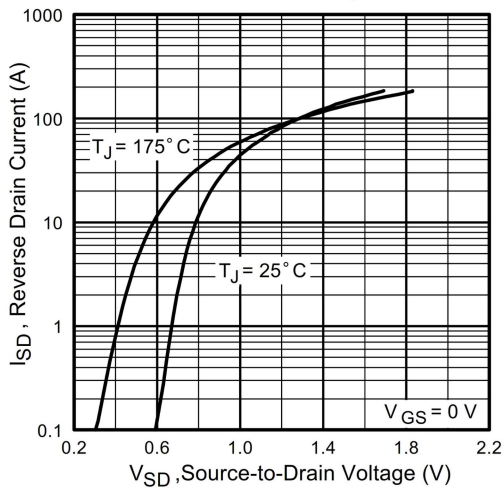
Typical Capacitance Vs. Drain-to-Source Voltage



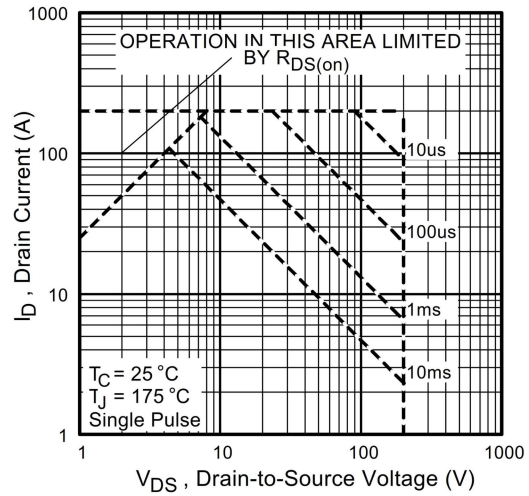
Typical Gate Charge Vs. Gate-to-Source Voltage



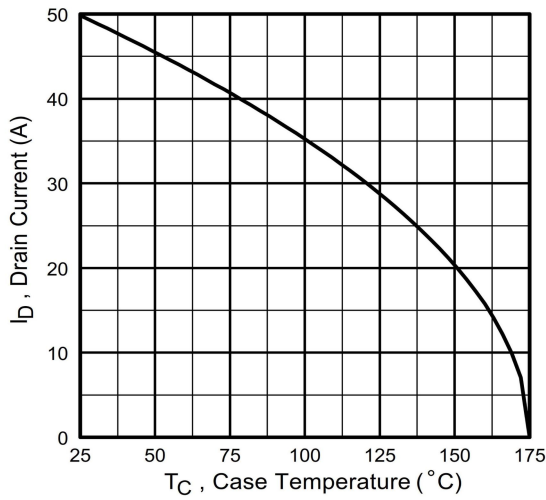
Typical Source-Drain Diode Forward Voltage



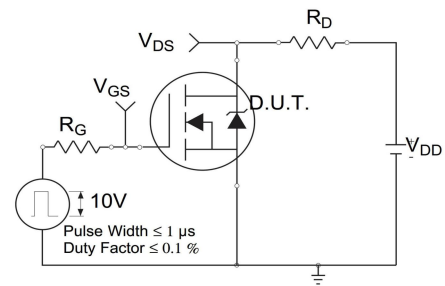
Maximum Safe Operating Area



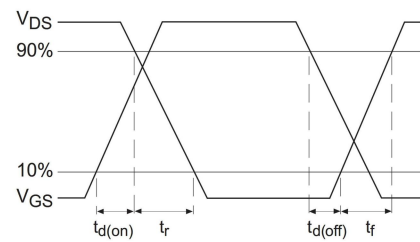
Maximum Drain Current Vs. Case Temperature



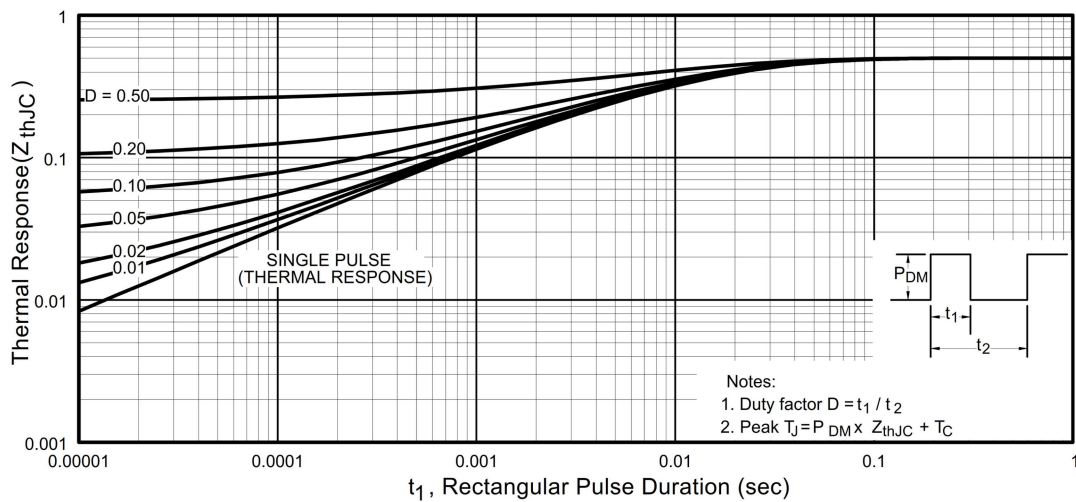
Switching Time Test Circuit



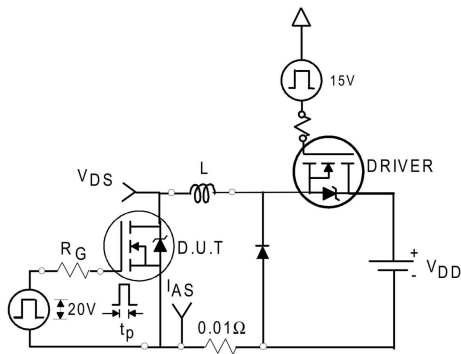
Switching Time Waveforms



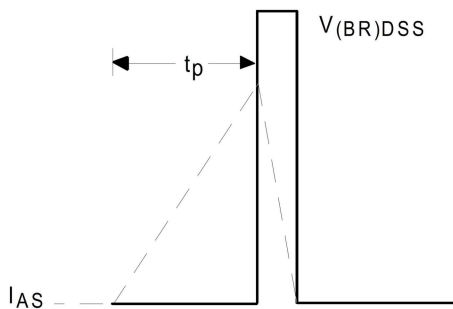
Maximum Effective Transient Thermal Impedance, Junction-to-Case



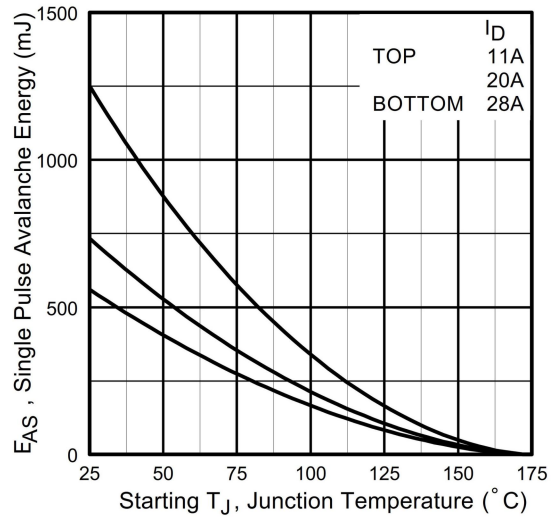
Unclamped Inductive Test Circuit



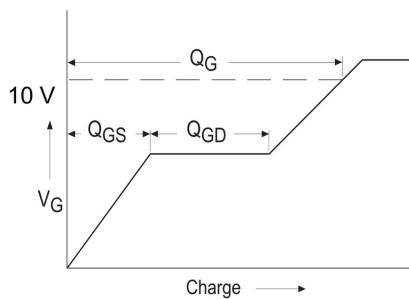
Unclamped Inductive Waveforms



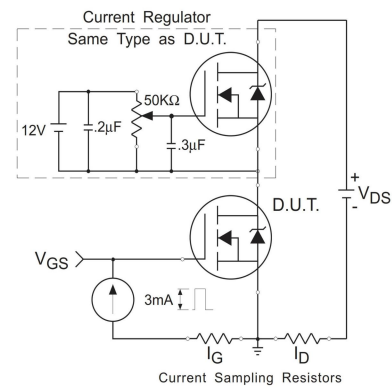
Maximum Avalanche Energy Vs. Drain Current



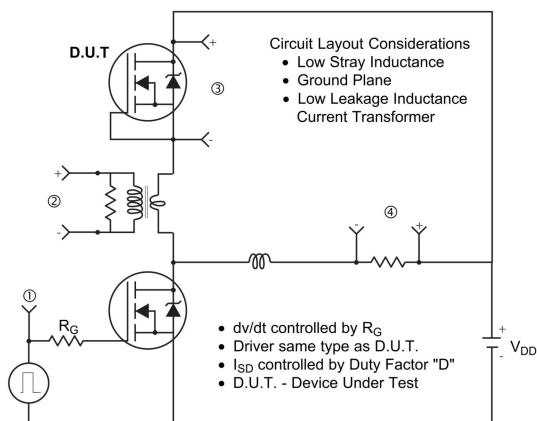
Basic Gate Charge Waveform



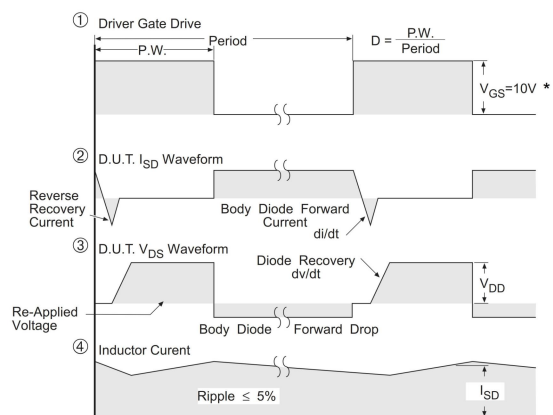
Gate Charge Test Circuit



Peak Diode Recovery dv/dt Test Circuit

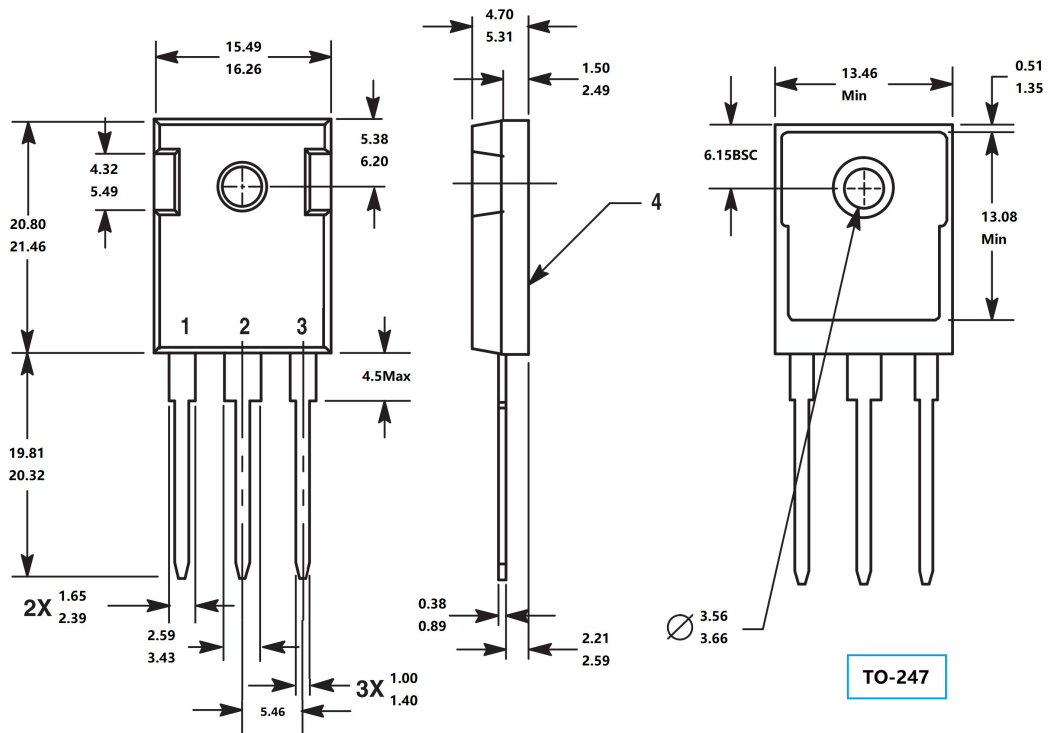


For N-Channel HEXFETS



* $V_{GS} = 5V$ for Logic Level Devices

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