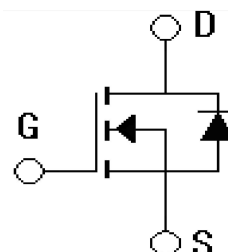
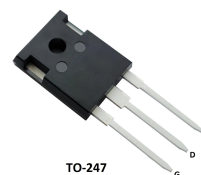


Features

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



Applications

- High efficiency switch mode
- Power supplies

Absolute Ratings (T_c=25°C)

Parameter	Symbol		Value	Unit
Drain-Source Voltage	V _{DSS}		200	V
Transient Gate-Source Voltage	V _{GSM}		±30	V
Continuous Gate-Source Voltage	V _{GSS}		±20	V
Drain Current -continuous	I _D	T _C =25℃	50	A
		T _C =100℃	35	A
Drain Current - pulse （note 1）	I _{DM}		200	A
Single Pulsed Avalanche Energy （note 2）	E _{AS}		784	mJ
Avalanche Current （note 1）	I _{AR}		28	A
Repetitive Avalanche Current （note 1）	E _{AR}		30	mJ
Peak Diode Recovery dv/dt （note 3）	dv/dt		10	V/ns
Power Dissipation	P _D	T _C =25℃	250	W
		T _C =100℃	100	W
Operating and Storage Temperature Range	T _j ,T _{STG}		-40~+150	℃
Maximum Lead Temperature for Soldering Purposes	T _L		300	℃

*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	$R_{DS(ON)}$	$V_{GS}=10V, I_D=50A$ (note 3)	-	40	50	m Ω
Forward Transconductance	g_{fs}	$V_{DS}=50V, I_D=50A$ (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	td(on)	V _{DD} =100V,I _D =50A, R _G =1.8Ω, 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 =50A, 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						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =1A (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}	$V_{GS}=0V, I_F=50A$ $di_F/dt=100A/us$ (note 3)	-	268	402	ns
Reverse recovery charge	Q_{rr}		-	1.9	2.8	uC

Thermal Characteristic

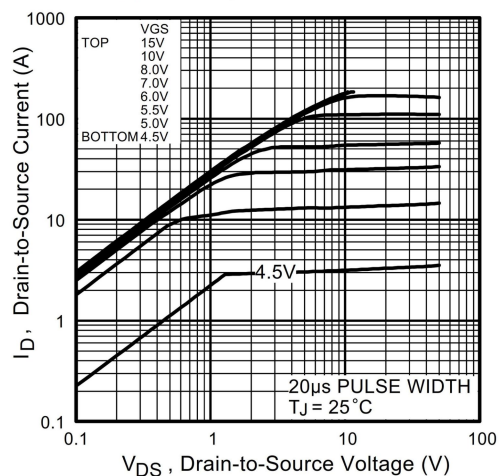
Parameter	Symbol	Value	Unit
Thermal Resistance, Junction-to-Case	$R_{\theta JC}$	0.5	$^{\circ}C/W$
Thermal Resistance, Junction-to-Ambient	$R_{\theta JA}$	40	$^{\circ}C/W$

Notes:

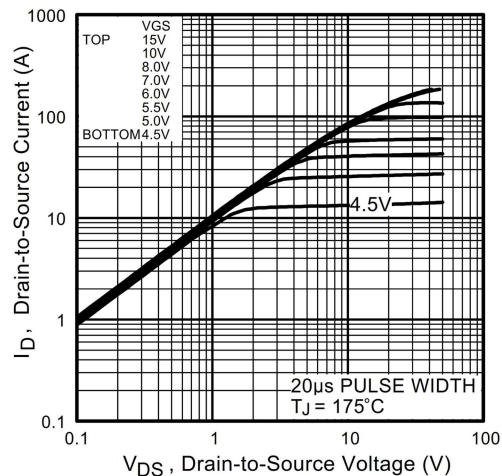
- 1: Repetitive rating; pulse width limited by max. junction temperature
- 2: Starting $T_J = 25^{\circ}C$, $L = 1.5mH$, $R_G = 25\Omega$, $I_{AS} = I_{AR}$, $V_{DD} = 50V$.
- 3: $I_{SD} \leq 28A$, $di/dt \leq 486A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq 150^{\circ}C$
- 4: Pulse Test: Pulse Width $\leq 400\mu s$, Duty Cycle $\leq 2\%$
- 5: Essentially independent of operating temperature

Electrical Characteristics

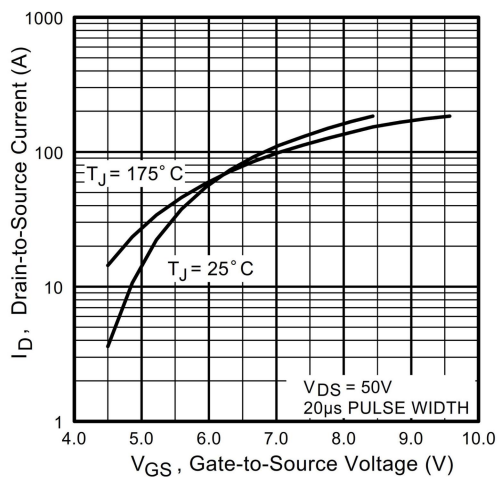
Typical Output Characteristics



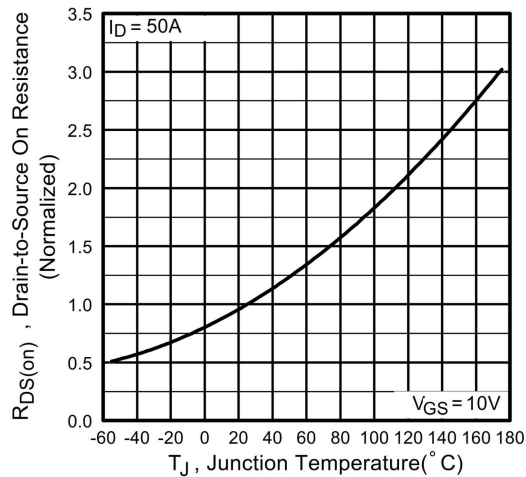
Typical Output Characteristics



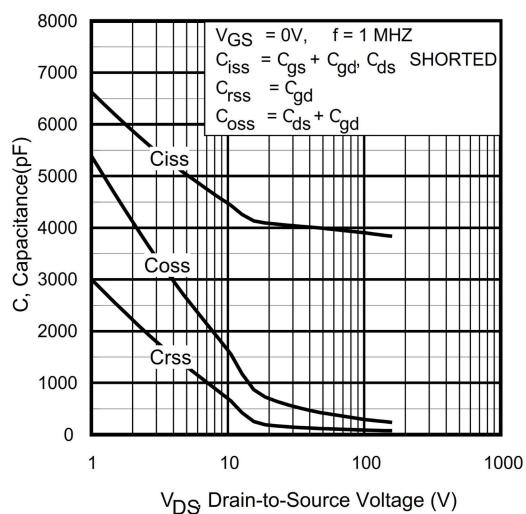
Typical Transfer Characteristics



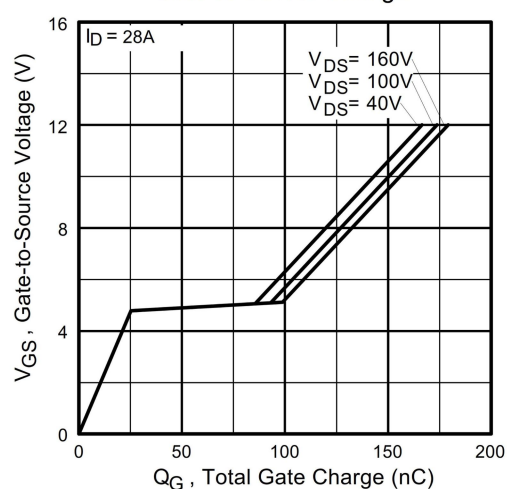
Normalized On-Resistance Vs. Temperature



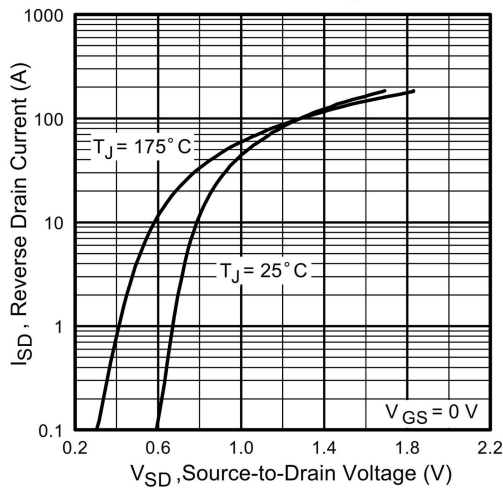
Typical Capacitance Vs. Drain-to-Source Voltage



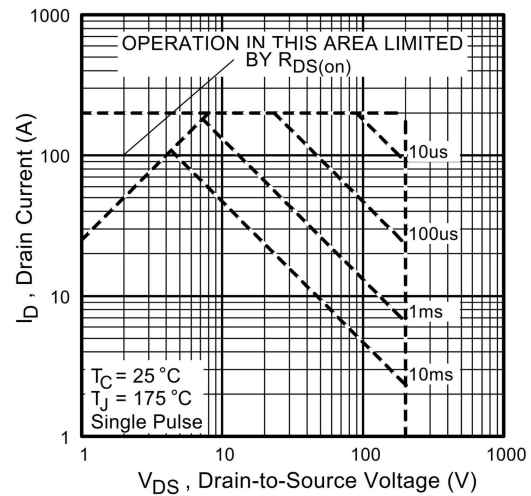
Typical Gate Charge Vs. Gate-to-Source Voltage



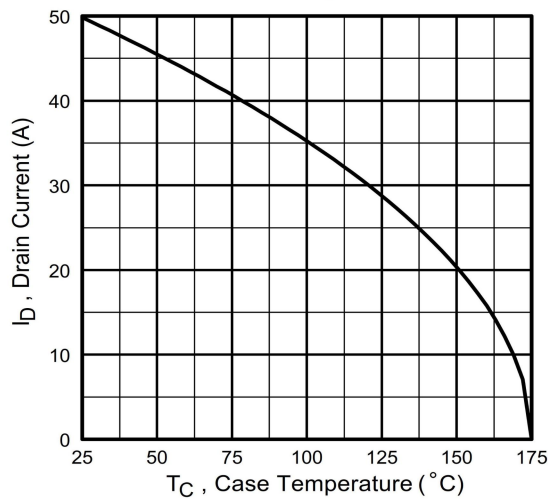
Typical Source-Drain Diode Forward Voltage



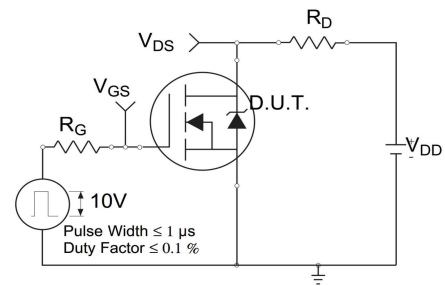
Maximum Safe Operating Area



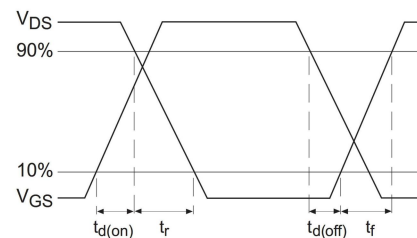
Maximum Drain Current Vs. Case Temperature



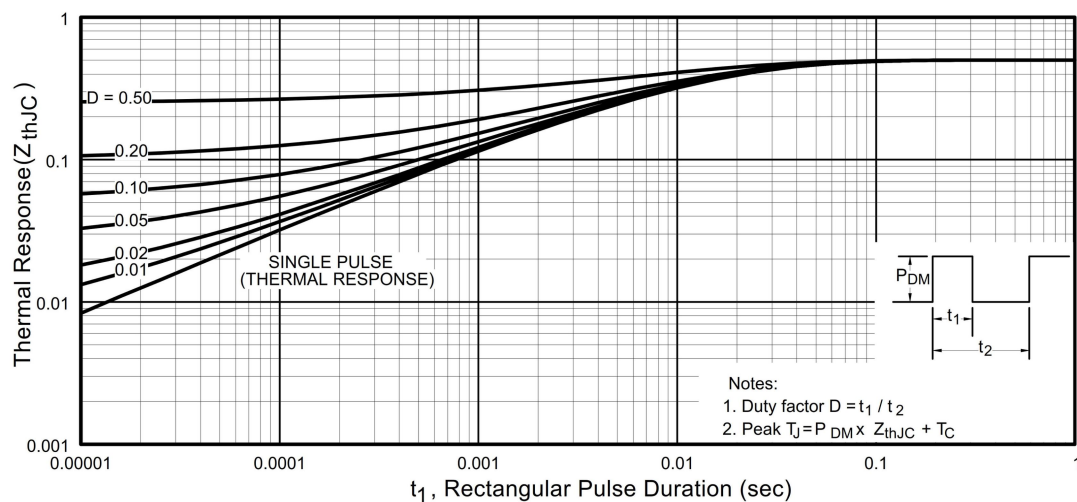
Switching Time Test Circuit



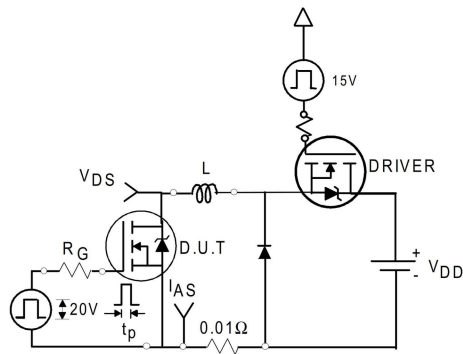
Switching Time Waveforms



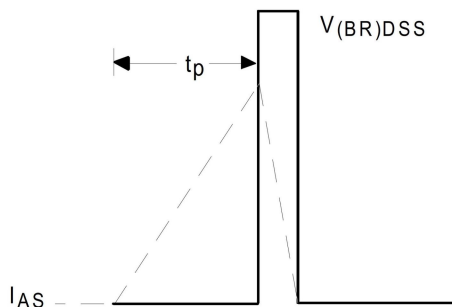
Maximum Effective Transient Thermal Impedance, Junction-to-Case



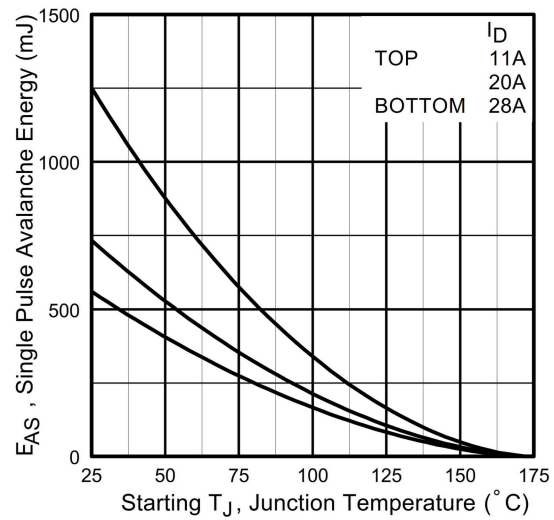
Unclamped Inductive Test Circuit



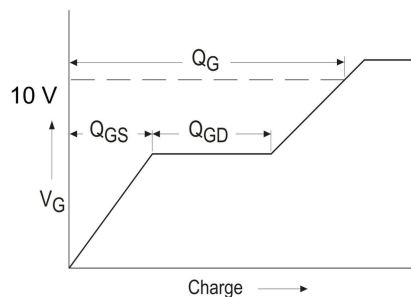
Unclamped Inductive Waveforms



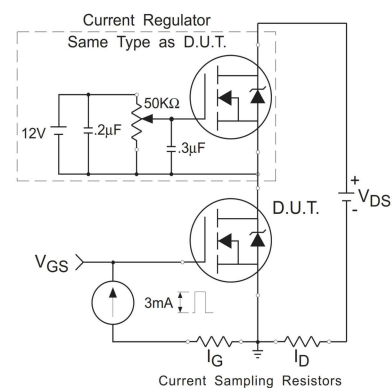
Maximum Avalanche Energy Vs. Drain Current



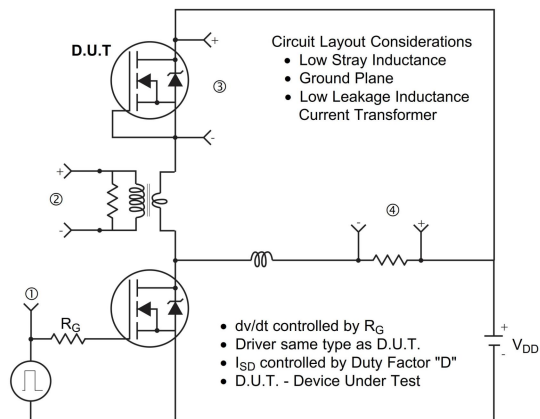
Basic Gate Charge Waveform



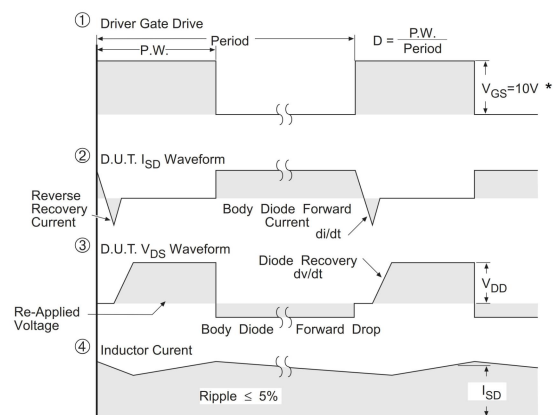
Gate Charge Test Circuit



Peak Diode Recovery dv/dt Test Circuit



For N-Channel HEXFETS



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

Package Mechanical DATA

