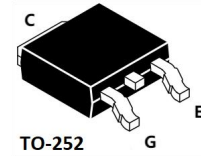


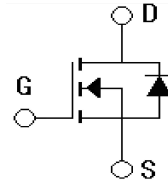
Features

- $V_{DS}=60V, I_D=30A$
 $R_{DS(ON)}=35m\Omega @ V_{GS}=10V$
- LOW $R_{DS(ON)}$
- Super High Dense Cell Design
- Reliable and rugged



Applications

- Power factor correction (PFC)
- Switched mode power supplies (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Management



Absolute Ratings (TC=25°C unless otherwise specified)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	60	V
Transient Gate-Source Voltage	V_{GSM}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous ⁽¹⁾	I_D	$T_C=25^\circ C$	A
		$T_C=100^\circ C$	
Drain Current-pulse ⁽²⁾	I_{DM}	120	A
Single Pulsed Avalanche Energy ⁽³⁾	E_{AS}	16	mJ
Maximum Power Dissipation	P_D	$T_C=25^\circ C$	W
		$T_C=100^\circ C$	
Operating and Storage Temperature Range	T_J, T_{STG}	-55~+150	°C

Electrical Characteristics (TC=25°C unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=250\mu A, V_{GS}=0V$	60	65	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V, T_C=25^\circ C$	-	-	1	μA
		$T_C=125^\circ C$	-	-	50	μA
Gate-Body Leakage Current	I_{GSS}	$V_{GS}=\pm 20V, V_{DS}=0V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu A$	0.8	1.3	2.0	V
Static Drain-Source On-Resistance ⁽⁴⁾	$R_{DS(ON)}$	$V_{GS}=10V, I_D=12A$	-	35	45	m Ω

Dynamic Characteristics ⁽⁵⁾						
Input capacitance	C _{iss}	V _{DS} =25V, V _{GS} =0V, f=1.0MHZ	-	2700	-	pF
Output capacitance	C _{oss}		-	1016	-	pF
Reverse transfer capacitance	C _{rss}		-	487	-	pF

Electrical Characteristics(T_{CASE}=25°C unless otherwise specified)

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics ⁽⁵⁾						
Gate Resistance	R _G	V _{GS} =0V,V _{DS} =0V,F=1MHz	-	25	-	Ω
Turn-On delay time	t _{d(on)}	V _{DS} =28V,I _D =16A, V _{GS} =15V,R _G =25Ω	-	52	-	ns
Turn-On rise time	t _r		-	142	-	ns
Turn-Off delay time	t _{d(Off)}		-	355	-	ns
Turn-Off rise time	t _f		-	230	-	ns
Total Gate Charge	Q _g	V _{DS} =48V,I _D =16A, V _{GS} =10V,R _G =25Ω	-	19	-	nC
Gate-Source charge	Q _{gs}		-	6.3	-	nC
Gate-Drain charge	Q _{gd}		-	4.8	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage ⁽⁴⁾	V _{SD}	V _{GS} =0V,I _S =16A	-	0.73	1.2	V
Diode Forward Current	I _S		-	-	30	A
Reverse recovery time	T _{rr}	I _{SD} =15A, dI _{SD} /dt=100A/μs	-	100	-	nS
Reverse recovery charge	Q _{rr}		-	0.33	-	μC

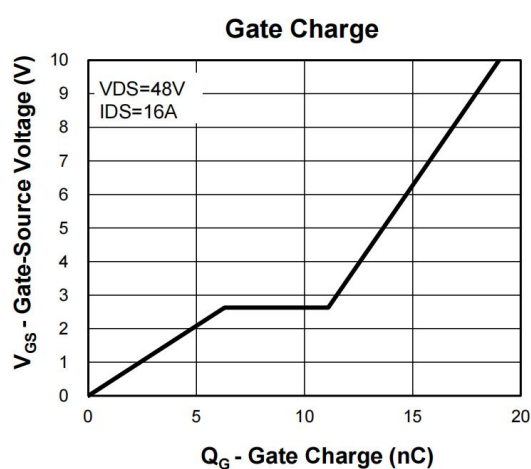
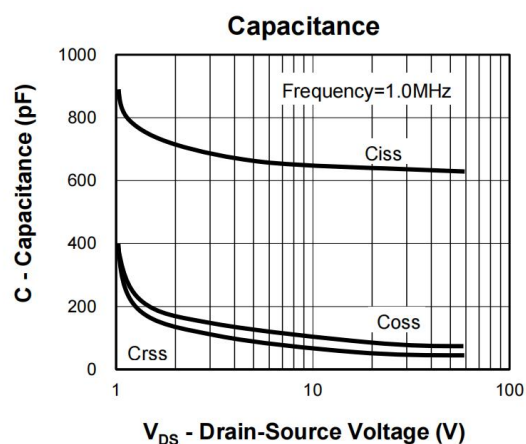
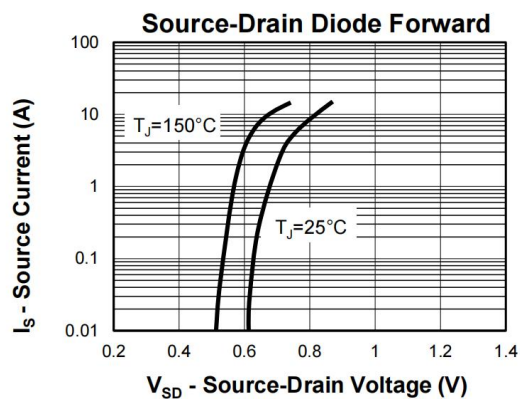
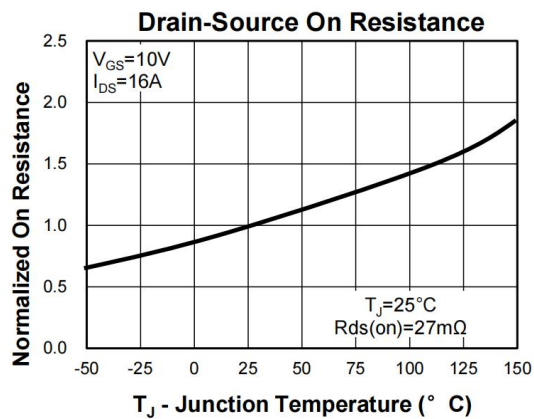
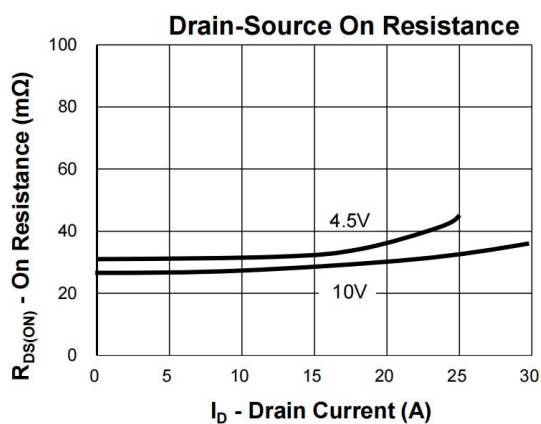
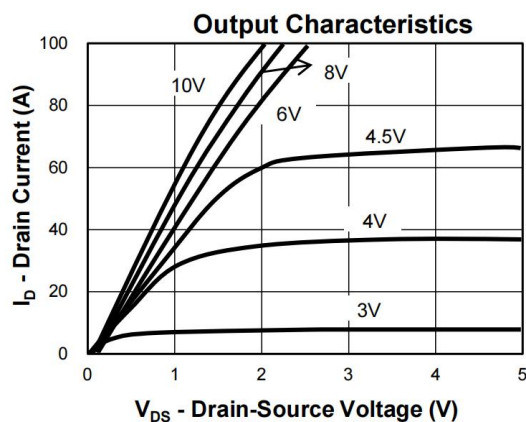
Thermal Characteristic

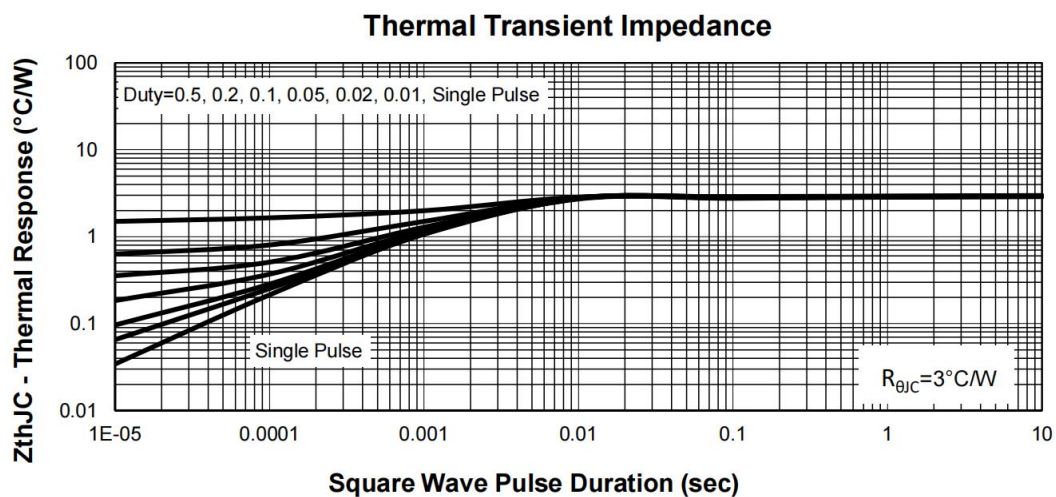
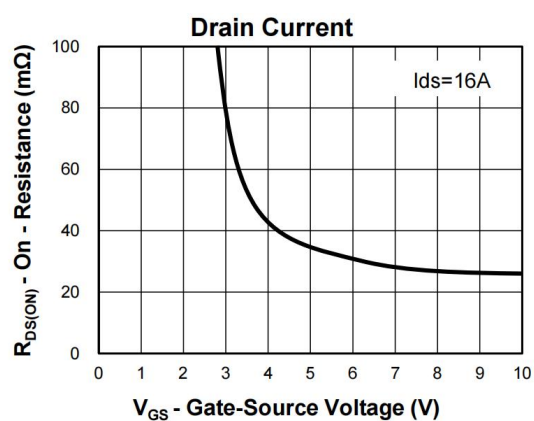
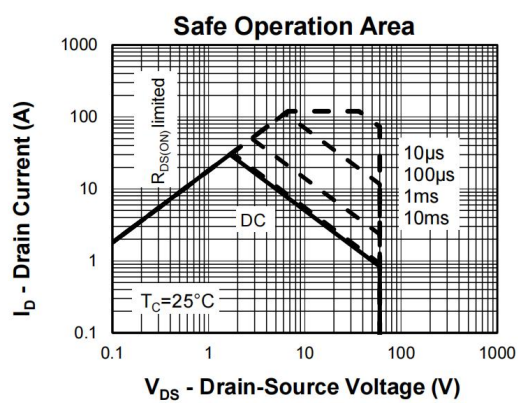
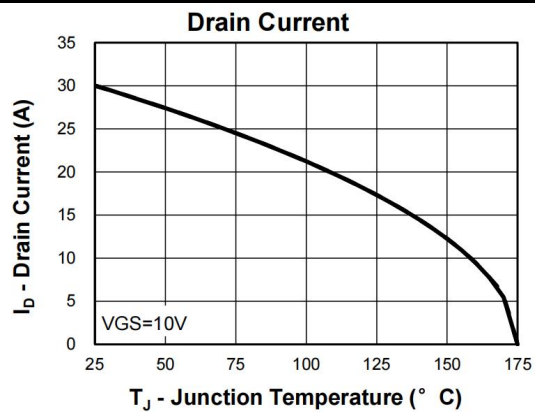
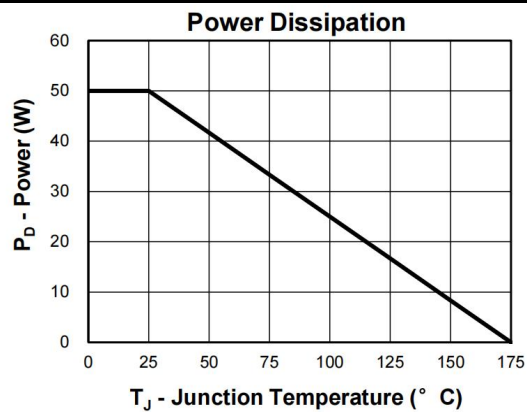
Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	R _{th(j-C)}	3	°C/W
Thermal Resistance, junction to Ambient ⁽⁶⁾	R _{th(j-A)}	100	°C/W

Notes:

1. Calculated continuous current based on maximum allowable junction temperature.
2. Pulse width limited by safe operating area.
3. Limited by T_{Jmax}, I_{AS} =8A, L=0.5mH, V_{DD} = 30V, R_G = 25Ω , Starting T_J = 25°C.
4. Pulse test; Pulse width ≤300μs, duty cycle ≤2%.
5. Guaranteed by design, not subject to production testing.
6. When mounted on 1 inch square copper board, t ≤10sec. The value in any given application depends on the user's specific board design.

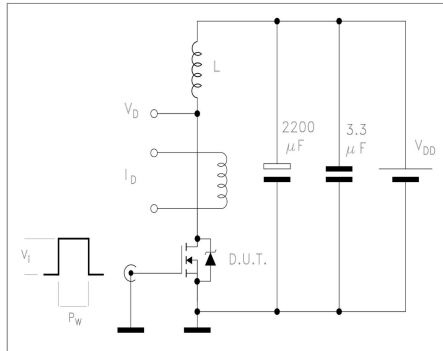
Electrical Characteristics



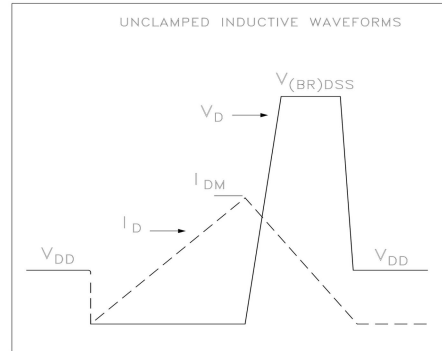


Test Philosophy

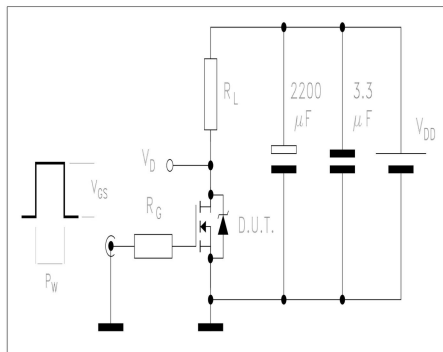
Unclamped Inductive Load Test Circuit



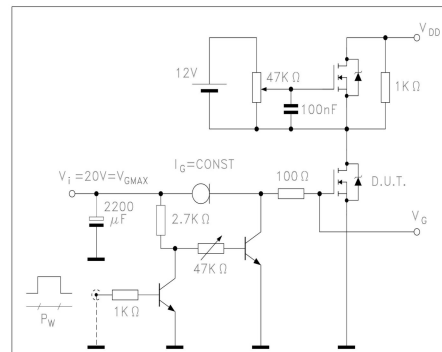
Unclamped Inductive Waveform



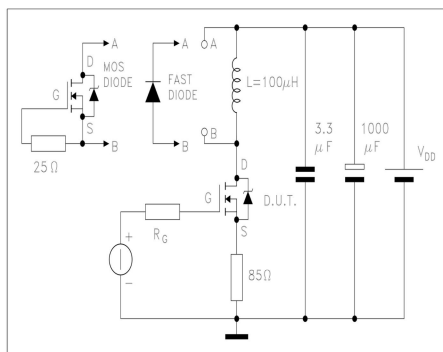
Switching Times Test Circuit For Resistive Load



Gate Charge test Circuit



Test Circuit For Inductive Load Switching And Diode Recovery Times



Package Mechanical Data

