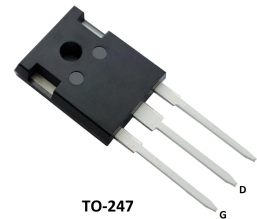


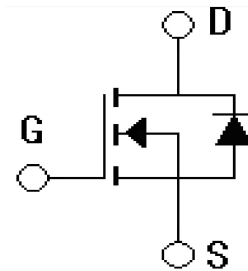
Features

- $V_{DS}=1200V, I_D=12A$
 $R_{DS(on)} < 3\Omega @ V_{GS}=10V$
- High density cell design for ultra low $R_{DS(on)}$
- Low gate charge
- Improved dv/dt capability
- RoHS product



Applications

- High Voltage Switched-mode and resonant-mode power supplies
- High Voltage Pulse Power Applications
- High Voltage Discharge circuits in Lasers Pulsers, Spark Igniters, RF Generators
- High Voltage DC-DC converters
- High Voltage DC-AC inverters



Absolute Ratings ($T_c=25^\circ C$)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DSS}	1200	V
Transient Gate-Source Voltage	V_{GSS}	± 30	V
Continuous Gate-Source Voltage	V_{GSS}	± 20	V
Drain Current-continuous	I_D	12	A
Drain Current-pulse(note 1)	I_{DM}	30	A
Single Pulsed Avalanche Energy(note 2)	E_{AS}	500	mJ
Maximum Power Dissipation	PD, $T_C=25^\circ C$ Derate above $25^\circ C$	290	W
		2.17	
Operating and Storage Temperature Range	T_J, T_{STG}	$-55 \sim +150$	$^\circ C$

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Drain-Source Voltage	BV_{DSS}	$I_D=1mA, V_{GS}=0V$	1200	-	-	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=V_{DSS}, V_{GS}=0V$	-	-	25	μA

Gate-Body Leakage Current	I_{GSS}	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	± 100	nA
On-Characteristics						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.5	-	5.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS} = 10V, I_D = 1A$	-	2	3	Ω
Forward Transconductance	g_{fs}	$V_{DS} = 20V, I_D = 6A$	5	9	-	S
Dynamic Characteristics						
Input capacitance	C_{iss}	$V_{DS} = 25V, V_{GS} = 0V, f = 1.0MHz (note 4)$	-	3150	-	pF
Output capacitance	C_{oss}		-	300	-	pF
Reverse transfer capacitance	C_{rss}		-	25	-	pF

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

Parameter	Symbol	Tests conditions	Min	Typ	Max	Units
Switching-Characteristics						
Turn-On delay time	t _{d(on)}	V _{DS} =600V,I _D =6A, V _{GS} =10V	-	34	-	ns
Turn-On rise time	t _r		-	25	-	ns
Turn-Off delay time	t _{d(Off)}		-	62	-	ns
Turn-Off rise time	t _f		-	34	-	ns
Total Gate Charge	Q _g	V _{DS} =600V,I _D =6A, V _{GS} =10V (note 4)	-	85	-	nC
Gate-Source charge	Q _{gs}		-	14	-	nC
Gate-Drain charge	Q _{gd}		-	48	-	nC
Drain-Source Diode Characteristics and Maximum Ratings						
Drain-Source Diode Forward Voltage	V _{SD}	V _{GS} =0V,I _S =12A (note 3)	0.5	-	1.2	V
Diode Forward Current	I _S	T _C =25°C	-	-	12	A
Reverse recovery time	T _{rr}	I _S =6A,di/dt=100A/μs	-	-	300	ns
Reverse recovery charge	Q _{rr}	V _R =100V,V _{GS} =0V	-	0.5	-	μC

Thermal Characteristics

Parameter	Symbol	Value	Unit
Thermal Resistance, junction to Case	$R_{th(j-C)}$	0.4	$^\circ C/W$

Notes:

1. Repetitive Rating : Pulse width limited by maximum junction temperature

2. $L = 5.0\text{mH}$, $I_{AS} = 10\text{A}$, $V_{DD} = 50\text{V}$, $R_G = 25\ \Omega$, Starting $T_J = 25^\circ\text{C}$
3. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycles $\leq 2\%$
4. Essentially independent of operating temperature

Electrical Characteristics

Fig. 1. Output Characteristics @ 25°C

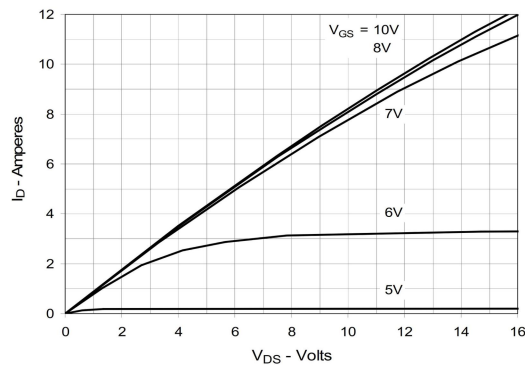


Fig. 2. Extended Output Characteristics @ 25°C

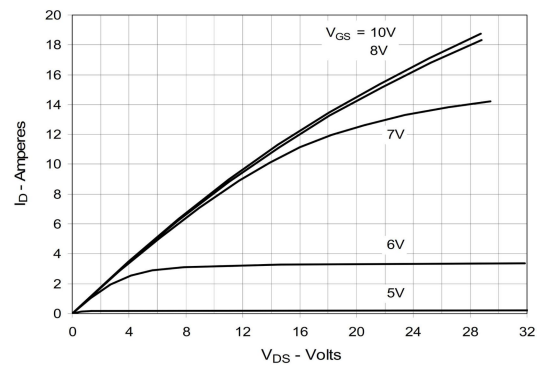


Fig. 3. Output Characteristics @ 125°C

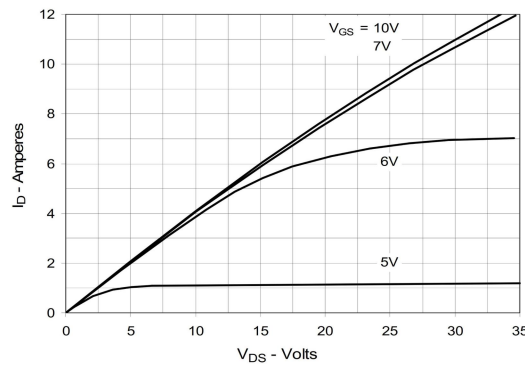


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 6\text{A}$ Value vs. Junction Temperature

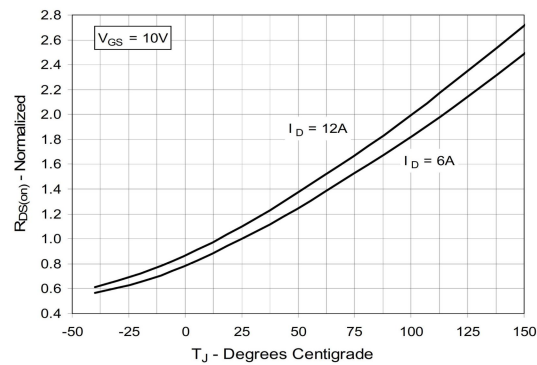


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 6\text{A}$ Value vs. Drain Current

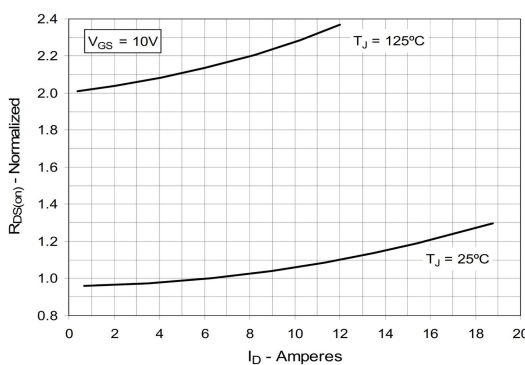


Fig. 6. Maximum Drain Current vs. Case Temperature

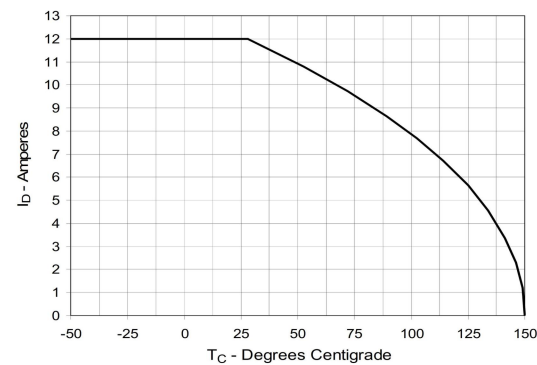


Fig. 7. Input Admittance

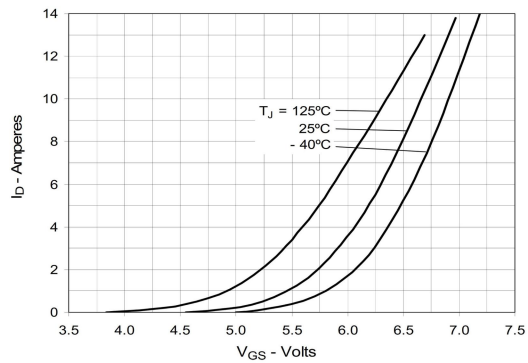


Fig. 8. Transconductance

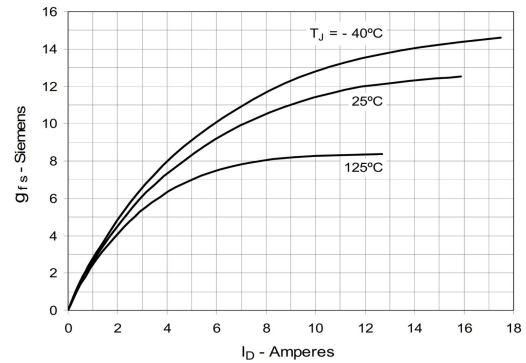


Fig. 9. Forward Voltage Drop of Intrinsic Diode

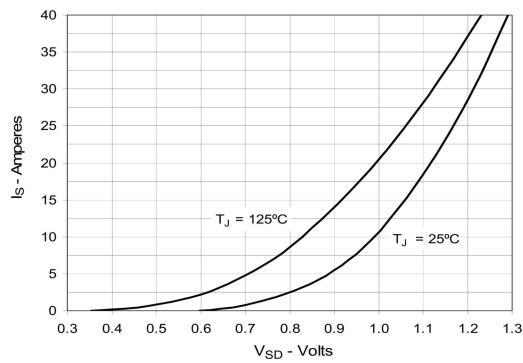


Fig. 10. Gate Charge

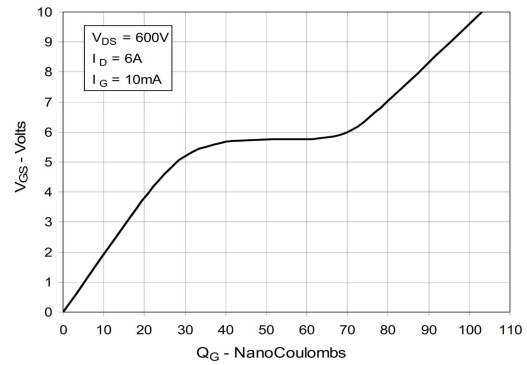


Fig. 11. Capacitance

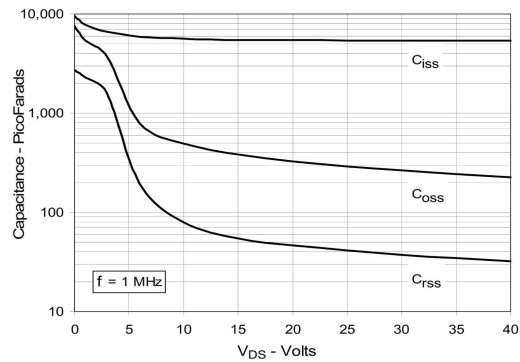
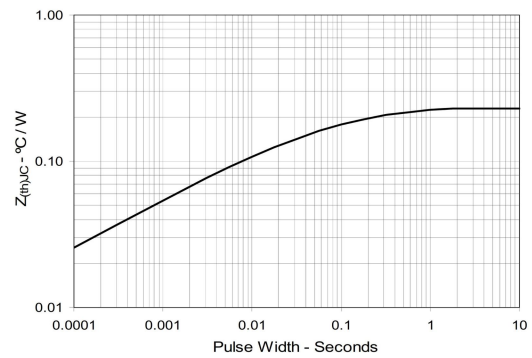


Fig. 12. Maximum Transient Thermal Impedance



Package Mechanical DATA

