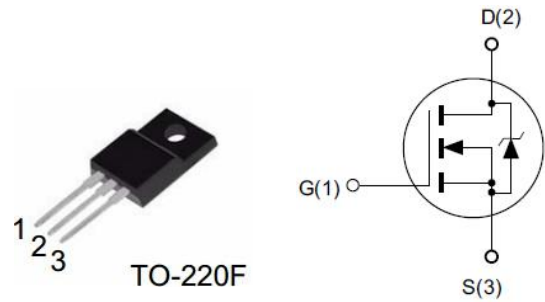


Features

- ◆ 800V, 8A, $R_{DS(on)}(Typ.) = 0.62\Omega @ V_{GS} = 10V$
- ◆ Advanced Super Junction Technology
- ◆ Easy To Control Gate Switching
- ◆ 100% Avalanche Tested



Application

- ◆ PC power, PD Adaptor, LCD & PDP TV and LED lighting
- ◆ Single-ended flyback or two-transistor forward topologies

Absolute Maximum Ratings $T_C = 25^\circ C$ unless otherwise noted

Symbol	Parameter	Rating	Unit
V_{DS}	Drain-Source Voltage ^a	800	V
V_{GS}	Gate-Source Voltage	± 30	
I_D	Drain Current-Continuous, $T_C = 25^\circ C$	8	A
I_{DM}	Drain Current-Pulsed ^b	35	
P_D	Maximum Power Dissipation, $T_C = 25^\circ C$	38	W
dv/dt	Peak Diode Recovery dv/dt	4	V/ns
E_{AS}	Single Pulsed Avalanche Energy ^c	151	mJ
T_J, T_{STG}	Operating and Store Temperature Range	150, -55 to 150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction to Case	3.26	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance, Junction to Ambient	76	

Electrical Characteristics $T_J = 25^\circ C$ unless otherwise noted

■ Off Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS} = 0V, I_D = 250\mu A$	800	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 800, V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Forward Gate Body Leakage Current	$V_{DS} = 0V, V_{GS} = 30V$	-	-	100	nA

■ On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	2.8	-	4.2	V
$R_{DS(on)}$	Static Drain-Source On-Resistance ^d	$V_{GS} = 10V, I_D = 6A$	-	0.62	0.75	Ω

■ Dynamic Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
R_G	Gate Resistance	$f = 1.0MHz$	-	25	-	Ω
C_{iss}	Input Capacitance	$V_{DS} = 100V,$ $V_{GS} = 0V,$ $f = 1.0MHz$	-	850.8	-	pF
C_{oss}	Output Capacitance		-	34.4	-	
C_{rss}	Reverse Transfer Capacitance		-	0.92	-	

■ On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 400V,$ $V_{GS} = 10V,$ $I_D = 4.1A,$ $R_G = 50\Omega$	-	40.6	-	ns
t_r	Turn-On Rise Time		-	34.8	-	
$t_{d(off)}$	Turn-Off Delay Time		-	128	-	
t_f	Turn-Off Fall Time		-	31	-	
Q_g	Total Gate Charge	$V_{DD} = 400V,$ $V_{GS} = 0 \text{ to } 10V,$ $I_D = 4.1A$	-	18.5	-	nC
Q_{gs}	Gate-Source Charge		-	5	-	
Q_{gd}	Gate-Drain Charge		-	6.6	-	

■ Drain-Source Diode Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS} = 0V, I_F = 1A$	-	0.75	-	V
T_{rr}	Body Diode Reverse Recovery Time	$V_R = 400V, I_F = 4.1A$ $di_F/dt = 100A/\mu s$	-	266.5	-	ns
Q_{rr}	Body Diode Reverse Recovery Charge	$V_R = 400V, I_F = 4.1A$ $di_F/dt = 100A/\mu s$	-	2.2	-	μC
I_{rrm}	Peak reverse recovery current	$V_R = 400V, I_F = 4.1A$ $di_F/dt = 100A/\mu s$	-	14	-	A

Notes:

- $T_J = +25^\circ C$ to $+150^\circ C$.
- Repetitive rating: pulse width limited by maximum junction temperature.
- $L = 10mH, V_{DD} = 100V, I_{AS} = 5.5A, R_G = 25\Omega$ Starting $T_J = 25^\circ C$.
- Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$.

■ Characteristic Curve

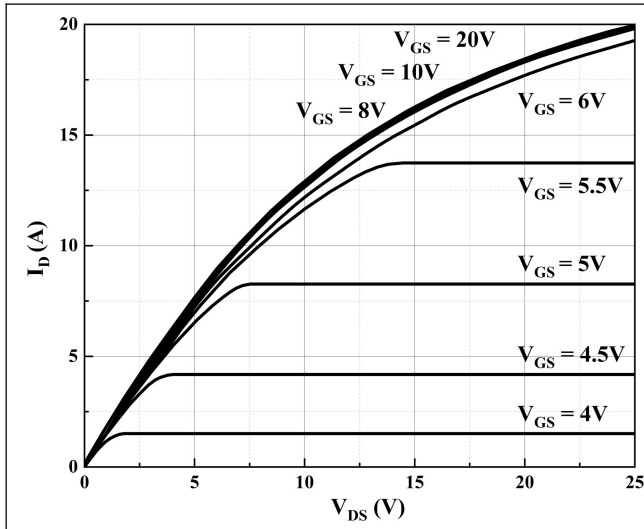


Figure 1. Typical Output Characteristics

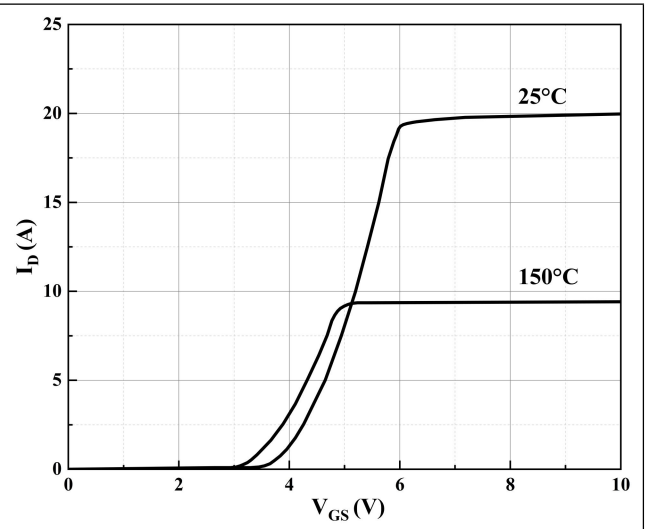


Figure 2. Typical Transfer Characteristics

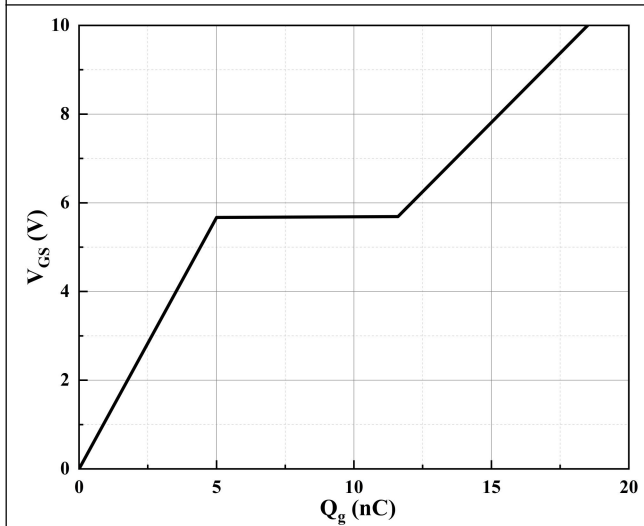


Figure 3. Typical Gate-Charge Characteristics

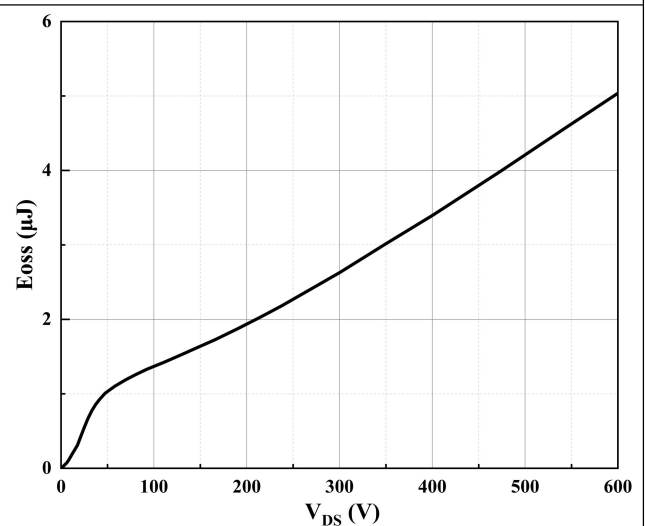


Figure 4. Typical Coss stored energy

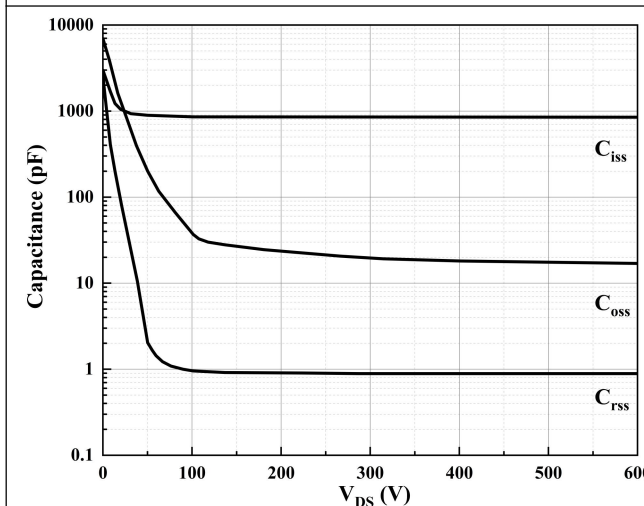


Figure 5. Typical Capacitance Characteristics

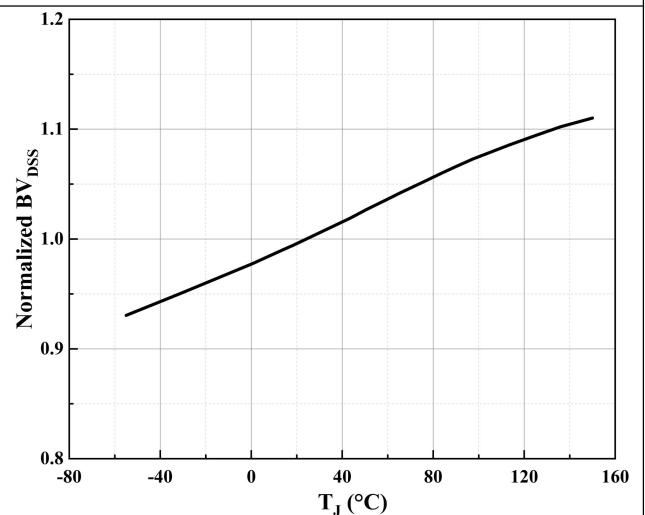


Figure 6. Normalized Drain-Source Breakdown Voltage vs. Junction Temperature

■ Characteristic Curve

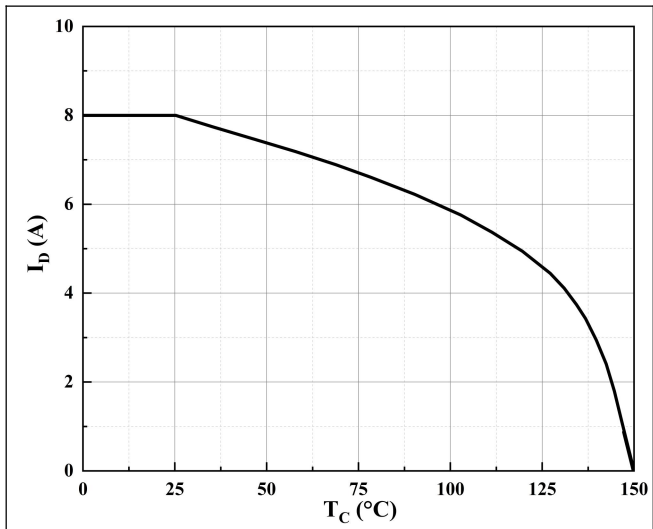


Figure 7. Maximum Continuous Drain Current vs. Case Temperature

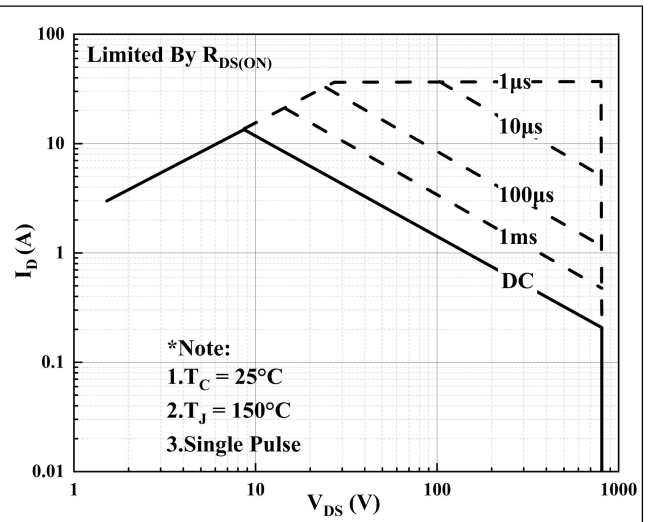


Figure 8. Maximum Safe Operating Area

■ Package Information

