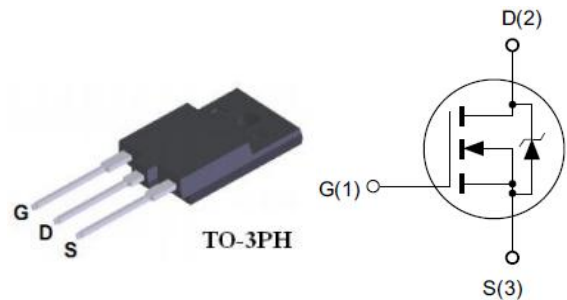


Features

- ◆ 1200V, 4A, $R_{DS(ON)}(Typ.) = 2.9\Omega @ V_{GS} = 10V$.
- ◆ Low ON Resistance
- ◆ Fast Switching
- ◆ Low Gate Charge
- ◆ 100% Single Pulse avalanche energy Test

Application

- ◆ UPS
- ◆ High efficiency switch mode power supplies
- ◆ Electronic lamp ballasts based on half bridge



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

Symbol	Parameter	Limit	Unit
V_{DS}	Drain-Source Voltage ^a	1200	V
V_{GS}	Gate-Source Voltage	± 30	V
I_D	Drain Current-Continuous, $T_c = 25^\circ C$	4	A
	Drain Current-Continuous, $T_c = 100^\circ C$	2.4	A
I_{DM}	Drain Current-Pulsed ^b	16	A
P_D	Maximum Power Dissipation @ $T_J = 25^\circ C$	48	W
EAS	Single Pulsed Avalanche Energy ^d	80	mJ
T_J, T_{STG}	Operating and Store Temperature Range	-55 to 150	$^\circ C$

Thermal Characteristics

Symbol	Parameter	Value	Unit
$R_{\theta JC}$	Thermal Resistance, Junction-Case Max.	2.6	$^\circ C/W$
$R_{\theta JA}$	Thermal Resistance Junction-Ambient Max.	40	$^\circ C/W$

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	$V_{GS} = 0V, I_D = 250\mu A$	1200	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS} = 1200V$ $V_{GS} = 0V$	-	-	1	μA
I_{GSS}	Forward Gate Body Leakage Current	$V_{DS} = 0V, V_{GS} = \pm 30V$	-	-	± 100	nA

■ On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS} = V_{GS}, I_D = 250\mu A$	3.0	-	5.0	V
$R_{DS(on)}$	Static Drain-Source On-Resistance ^c	$V_{GS} = 10V, I_D = 2A$	-	2.9	4.0	Ω

■ Dynamic Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
C_{iss}	Input Capacitance	$V_{DS} = 25V,$ $V_{GS} = 0V,$ $f = 1.0MHz$	-	833	-	pF
C_{oss}	Output Capacitance		-	150	-	pF
C_{rss}	Reverse Transfer Capacitance		-	98	-	pF

■ On Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
$t_{d(on)}$	Turn-On Delay Time	$V_{DD} = 600V, I_D = 4A,$ $R_G = 25\Omega, V_{GS} = 10V$	-	29	-	ns
t_r	Turn-On Rise Time		-	55	-	ns
$t_{d(off)}$	Turn-Off Delay Time		-	94	-	ns
t_f	Turn-Off Fall Time		-	88	-	ns
Q_g	Total Gate Charge	$V_{DD} = 960V, I_D = 4A,$ $V_{GS} = 10V$	-	39	-	nC
Q_{gs}	Gate-Source Charge		-	6	-	nC
Q_{gd}	Gate-Drain Charge		-	25	-	nC

■ Drain-Source Diode Characteristics

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Unit
I_S	Drain-Source Diode Forward Continuous Current	$V_{GS} = 0V$	-	-	4	A
I_{SM}	Maximum Pulsed Current	$V_{GS} = 0V$	-	-	16	A
V_{SD}	Drain-Source Diode Forward Voltage	$V_{GS} = 0V, I_S = 4$	-	-	1.5	V
t_{rr}	Reverse Recovery Time	$I_S = 4A, T_j = 25^\circ C$ $dI_F/dt = 100A/\mu s,$ $V_{GS} = 0V$	-	595	-	ns
Q_{rr}	Reverse Recovery Charge		-	4.9	-	μC

Notes:

- $T_J = +25^\circ C$ to $+150^\circ C$
- Repetitive rating; pulse width limited by maximum junction temperature.
- Pulse width $\leq 300\mu s$; duty cycle $\leq 2\%$
- $L = 10mH, V_{DD} = 50V, I_{AS} = 4A, R_G = 25\Omega$ Starting $T_J = 25^\circ C$

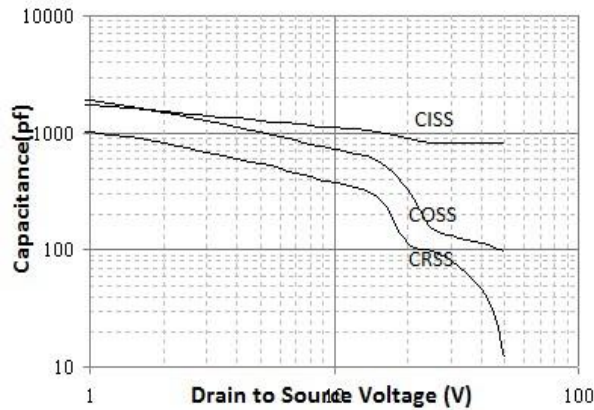


Figure 1. Capacitance Characteristics

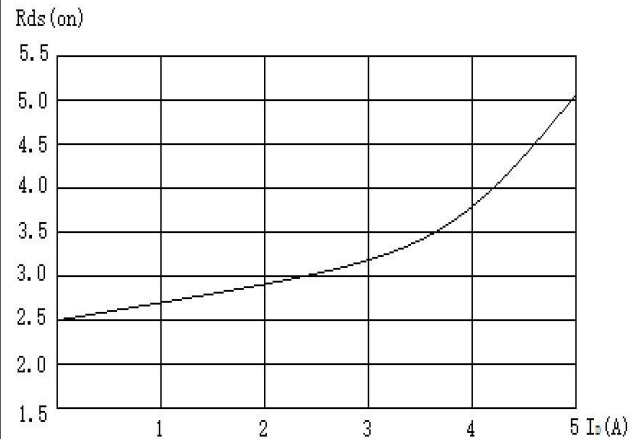


Figure 2. On-Resistance Variation vs. ID

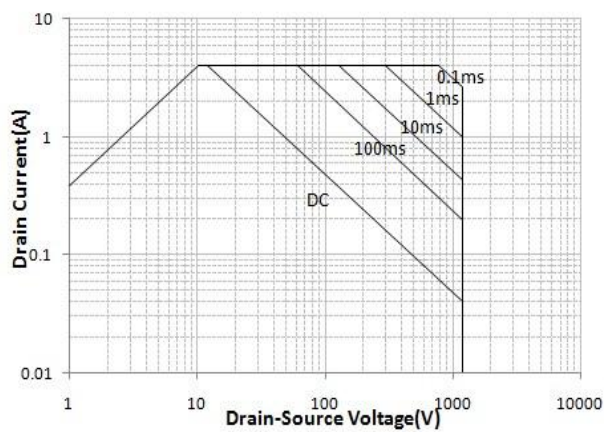


Figure 3. Maximum Safe Operating Area

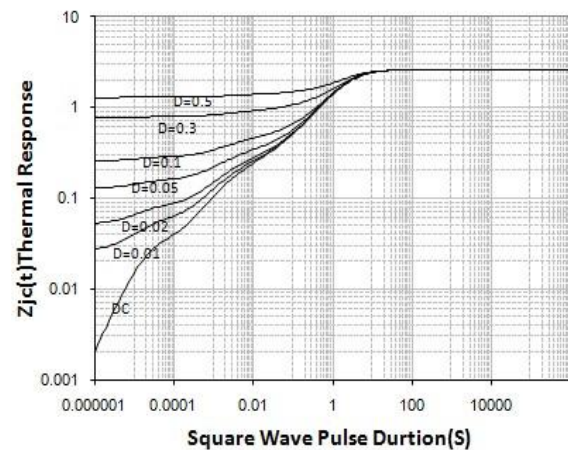


Figure 4. Thermal impedance

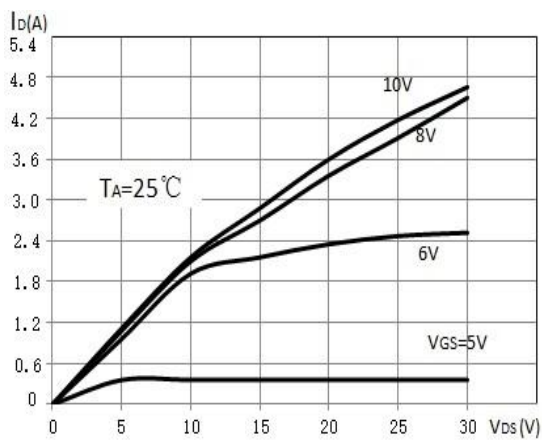


Figure 5. Output characteristics

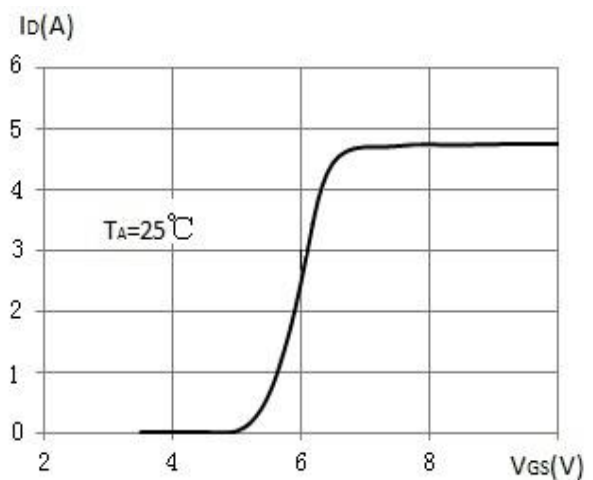


Figure 6. Transfer characteristics

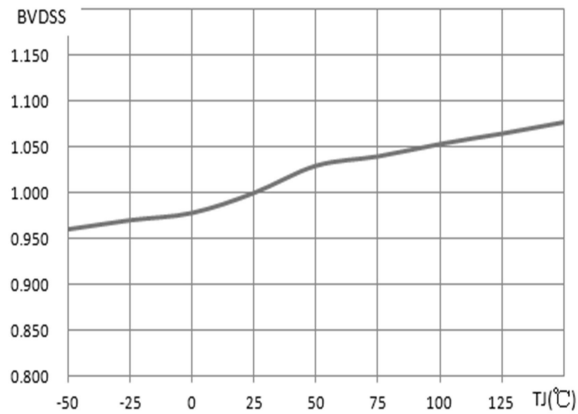


Figure 7. Normalized BVDSS vs. temperature

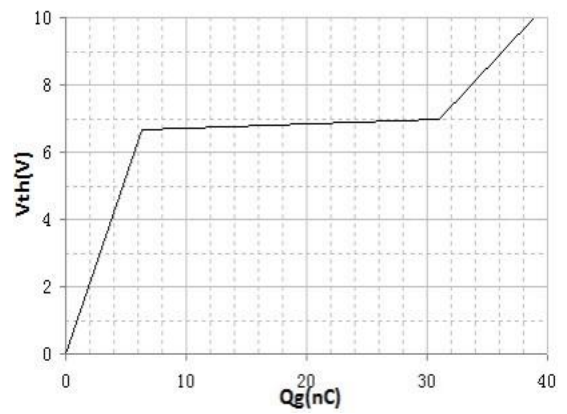


Figure 8. Gate charge vs. VGS

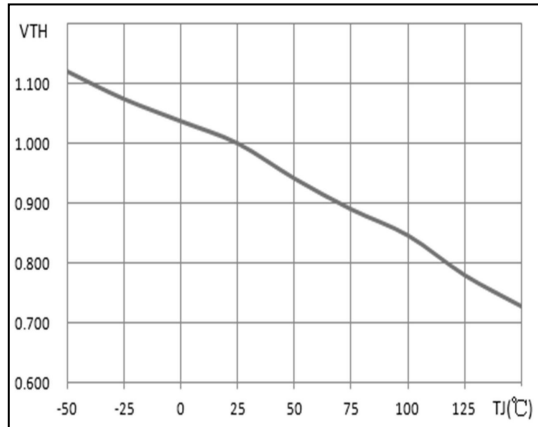


Figure 9. Normalized VTH vs. temperature

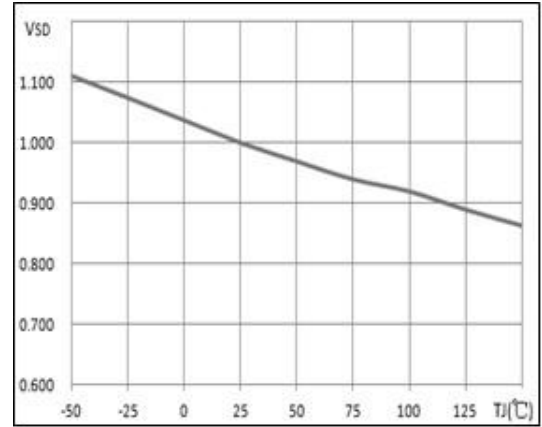
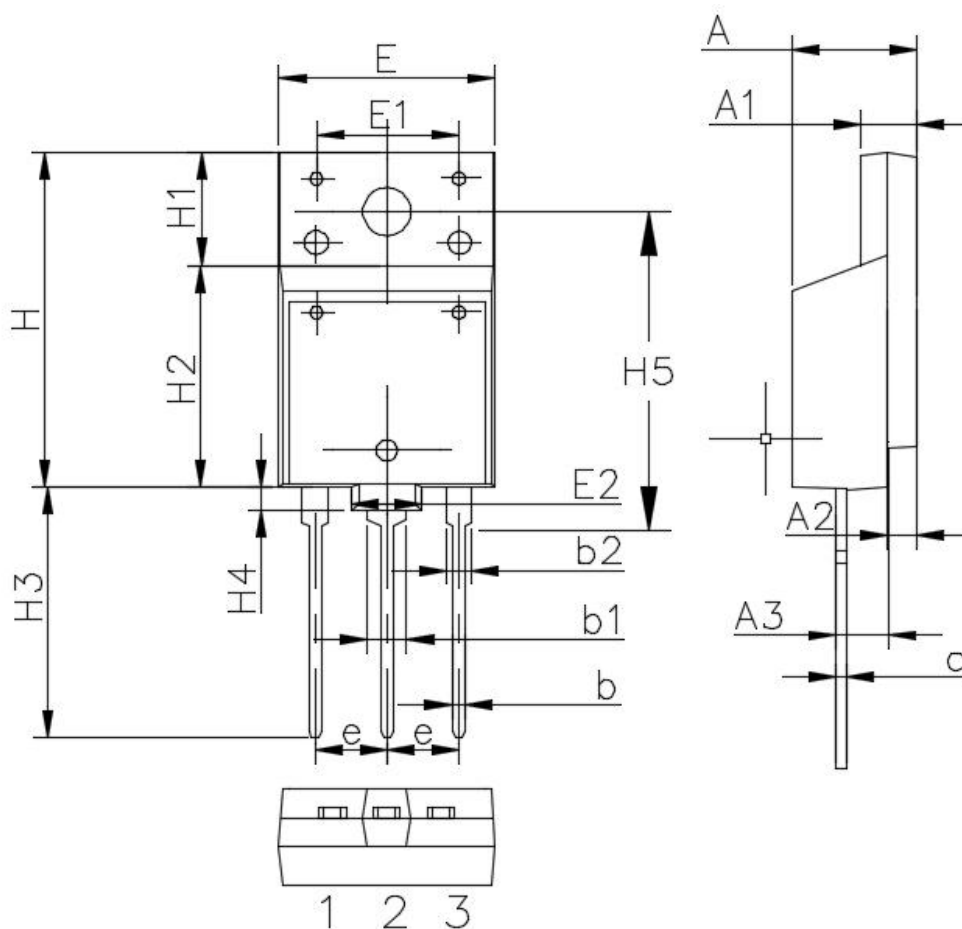


Figure 10. Normalized VSD vs. temperature

■ Package Information



Symbol	单位 mm			Symbol	单位 mm		
	Min	Nom	Max		Min	Nom	Max
A	5.35	5.55	5.75	E1	9.80	10.0	10.2
A1	2.80	3.00	3.20	E2	3.80	4.00	4.20
A2	1.90	2.10	2.30	H	24.3	24.5	24.7
A3	1.00	1.20	1.40	H1	9.80	10.0	10.2
b	0.80	0.90	1.00	H2	14.3	14.5	14.7
b1	1.80	2.00	2.20	H3	18.5	19.0	19.5
b2	1.80	2.00	2.20	H4	2.00	2.20	2.40
c	0.70	0.90	1.10	H5	24.0	24.5	25.0
e	5.25	5.45	5.65	G	4.3	4.5	4.7
E	15.2	15.4	15.6	ΦP	3.30	3.50	3.70