Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	I_D
100V	70mΩ@10V	4A

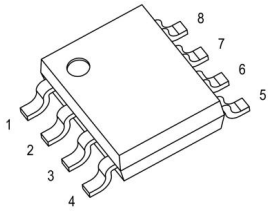
Feature

- N-Channel
- Enhancement mode
- Very low on-resistance @ VGS=4.5 V
- Fast Switching

Application

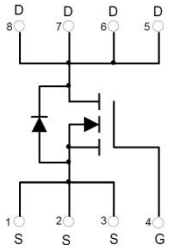
- Synchronous Rectifier
- Primary Switch For Bridge Topology

Package

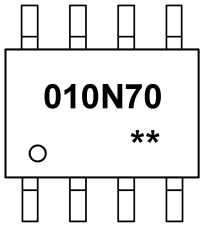


SOP-8L

Circuit diagram



Marking



010N70 : **Product code**
****** : **Week code.**

Absolute maximum ratings (Ta=25℃ unless otherwise noted)

Parameter	Symbol	Rating	Units
Drain-Source Voltage	V_{DS}	100	V
Gate-Source Voltage	V_{GS}	±20	V
Continuous Drain Current, VGS @ 10V[1]	I_D	4	A
Pulsed Drain Current[2]	I_{DM}	16	A
Total Power Dissipation	P_D	1.5	W
Thermal Resistance Junction-ambient [1]	$R_{\theta JA}$	85	℃/W
Thermal Resistance Junction-Case[1]	$R_{\theta JC}$	25	℃/W
Storage Temperature Range	T_{STG}	-55 to 150	℃
Operating Junction Temperature Range	T_J	-55 to 150	℃

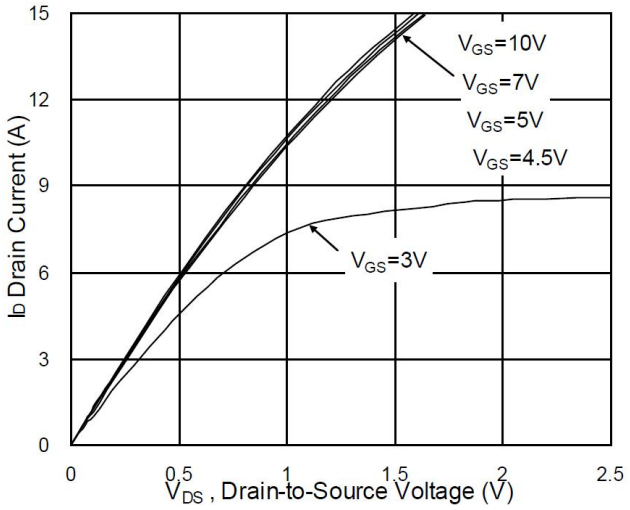
Electrical characteristics (T_A=25 ºC, unless otherwise noted)

Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	BV_{DSS}	VGS=0V , ID=250uA	100			V
Drain-Source Leakage Current	I_{DSS}	VDS=80V , VGS=0V , TJ=25℃			1	uA
Gate-Source Leakage Current	I_{GSS}	VGS=±20V , VDS=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	VGS=VDS , ID =250uA	1.2	1.8	2.5	V
Static Drain-Source On-Resistance[2]	$R_{DS(ON)}$	VGS=10V , ID=2A		70	100	mΩ
		VGS=4.5V , ID=1A		85	110	
Dynamic Characteristics						
Total Gate Charge (10V)	Q_g	VDS=80V , VGS=10V , ID=2A		26.2	36.7	nC
Gate-Source Charge	Q_{gs}			3.8	5.32	
Gate-Drain Charge	Q_{gd}			4.8	6.7	
Input Capacitance	C_{iss}	VDS=15V , VGS=0V , f=1MHz		1535	2149	pF
Output Capacitance	C_{oss}			60	84	
Reverse Transfer Capacitance	C_{rss}			37	52	
Switching Characteristics						
Turn-On Delay Time	$T_{d(on)}$	VDD=50V , VGS=10V , RG=3.3Ω ID=2A		4.2	8.4	ns
Rise Time	T_r			7.6	14	
Turn-Off Delay Time	$T_{d(off)}$			41	82	
Fall Time	T_f			14	28	
Drain-Source Diode Characteristics						
Continuous Source Current[1,4]	I_S	VG=VD=0V , Force Current			2.5	A
Pulsed Source Current[2,4]	I_{SM}				10	A
Diode Forward Voltage[2]	V_{SD}	VGS=0V , IS=1A , TJ=25℃			1.2	V
Reverse Recovery Time	t_{rr}	IF=2A , dI/dt=100A/μs , TJ=25℃		35		nS
Reverse Recovery Charge	Q_{rr}			17		nC

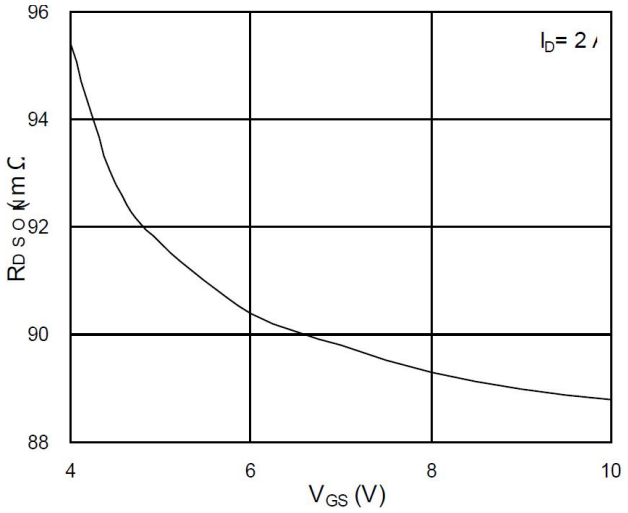
Note:

1. The data tested by surface mounted on a 1 inch^2 FR-4 board with 2OZ copper.
2. The data tested by pulsed , pulse width ≦ 300us , duty cycle ≦ 2%
3. The power dissipation is limited by 150℃ junction temperature
4. The data is theoretically the same as ID and IDM, in real applications, should be limited by total power dissipation.

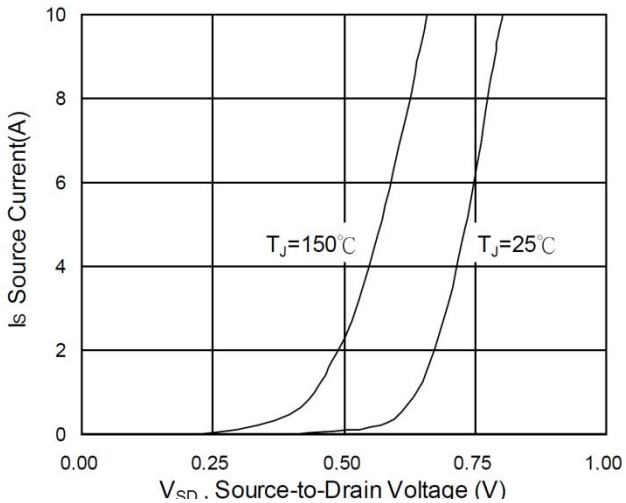
Typical Characteristics



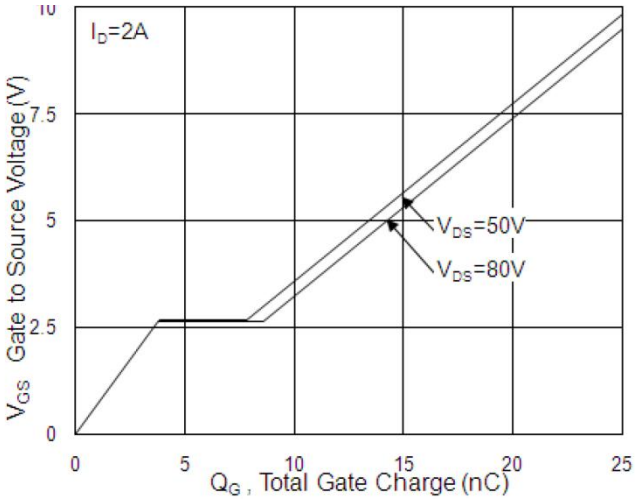
Typical Output Characteristics



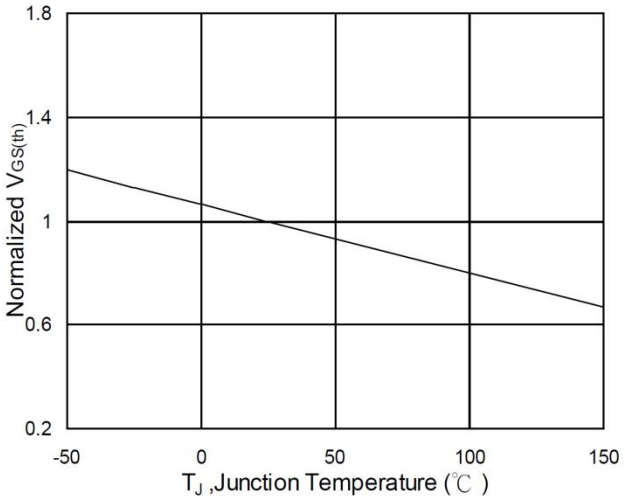
On-Resistance vs. Gate-Source



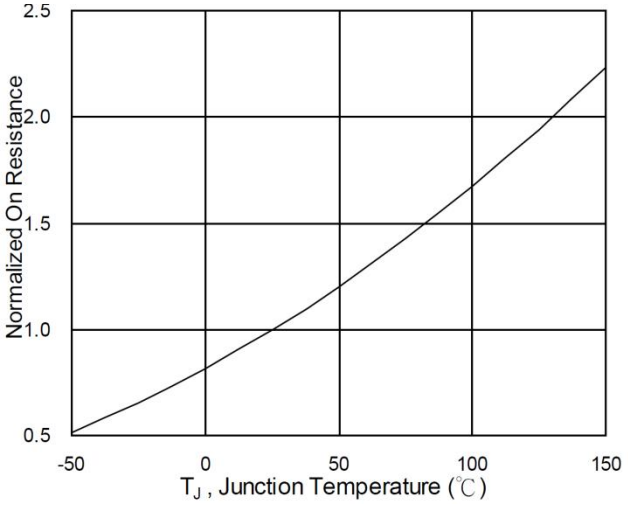
Forward Characteristics Of Reverse



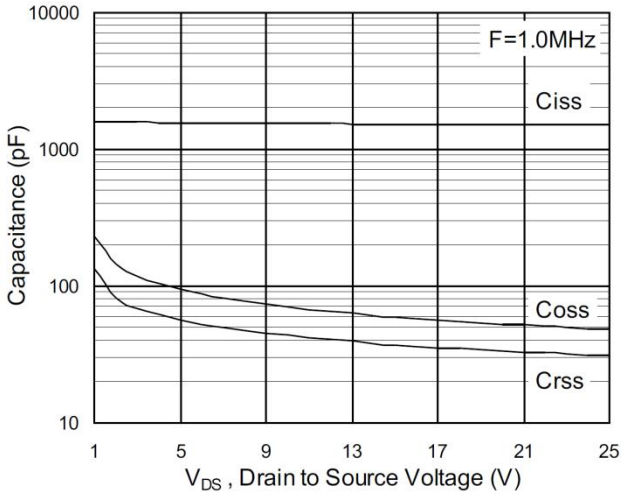
Gate-Charge Characteristics



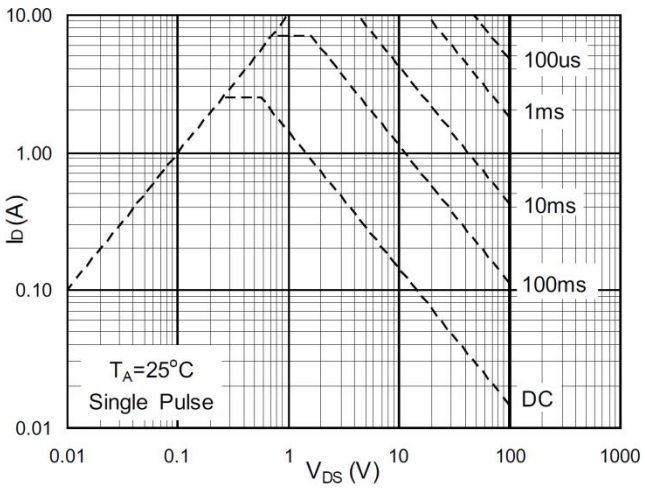
Normalized VGS(th) vs. TJ



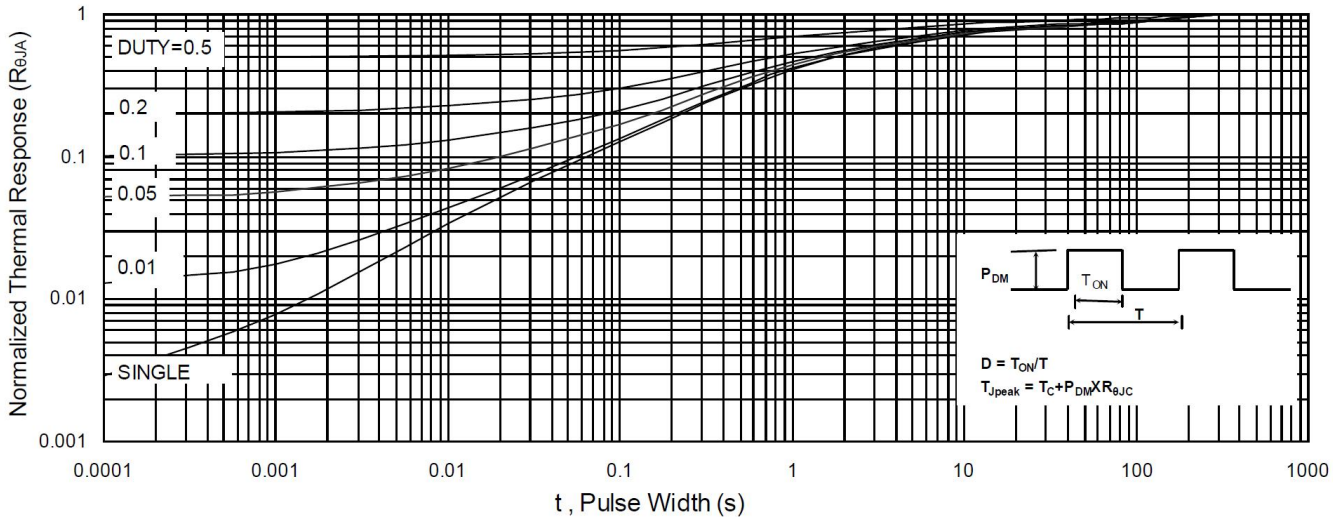
Normalized RDSON vs. TJ



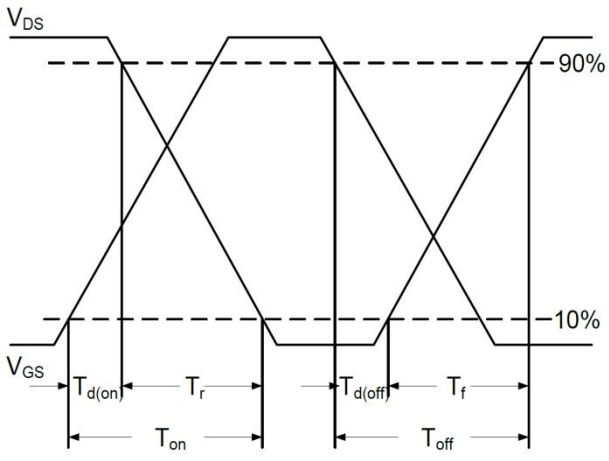
Capacitance



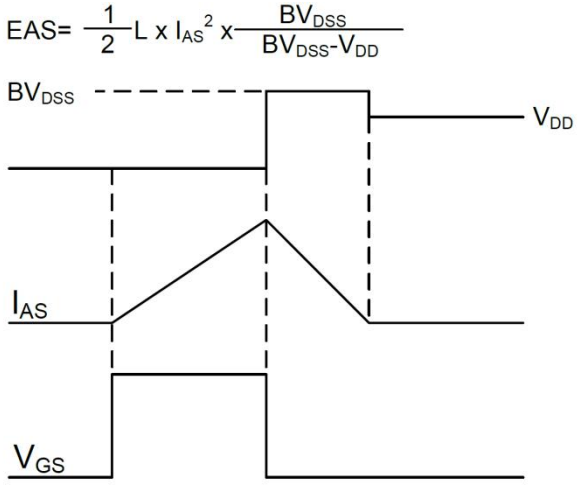
Safe Operating Area



Normalized Maximum Transient Thermal Impedance

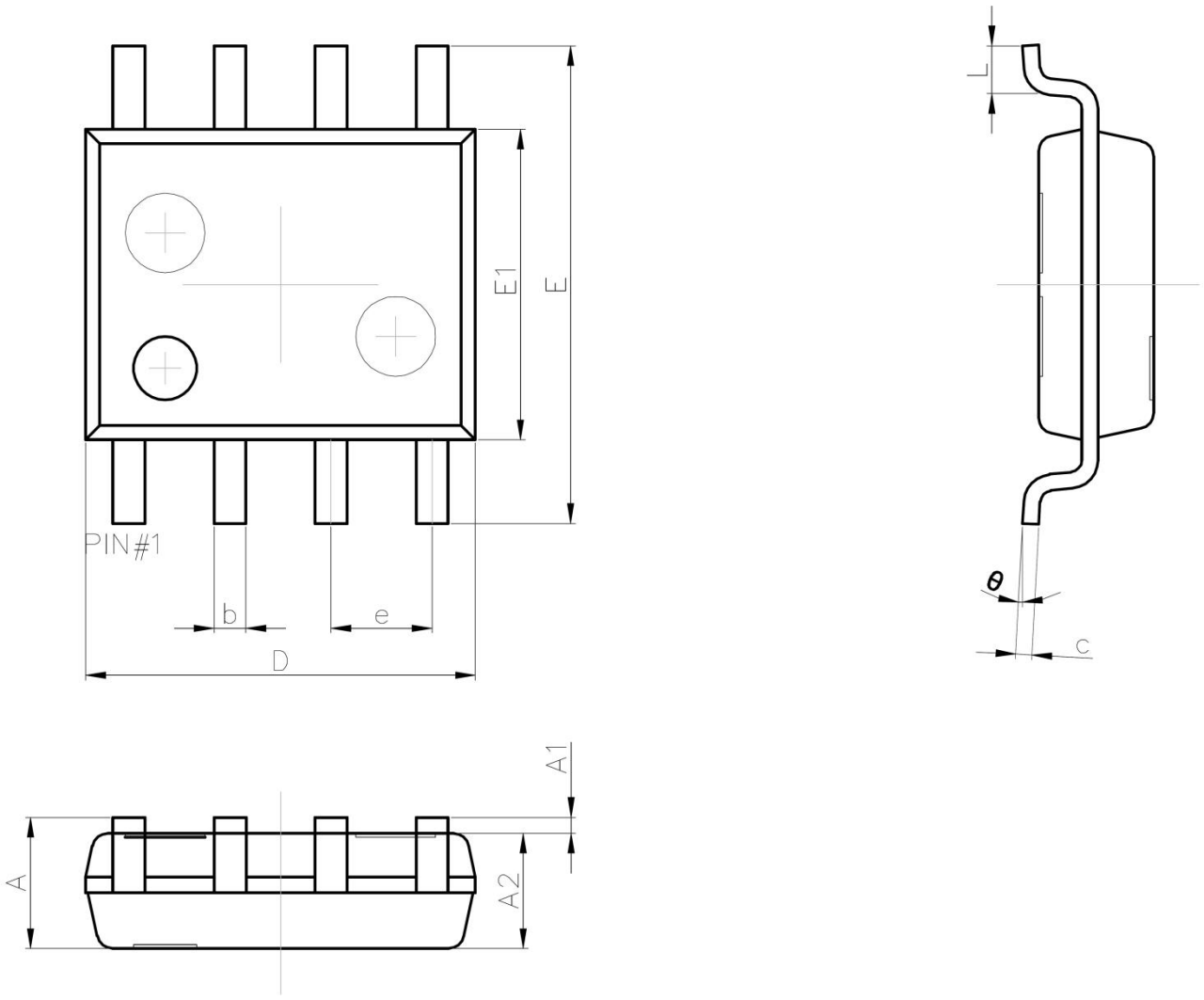


Switching Time Waveform



Unclamped Inductive Switching Waveform

SOP-8 Package Information



Symbol	Dimensions In Millimeters	
	Min.	Max.
A	1.35	1.75
A1	0.10	0.25
A2	1.35	1.55
b	0.33	0.51
c	0.17	0.25
D	4.80	5.00
e	1.27 REF.	
E	5.80	6.20
E1	3.80	4.00
L	0.40	1.27
θ	0°	8°