

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)TYP}$	$I_D$
100V	10mΩ@10V	12A
	13mΩ@4.5V	

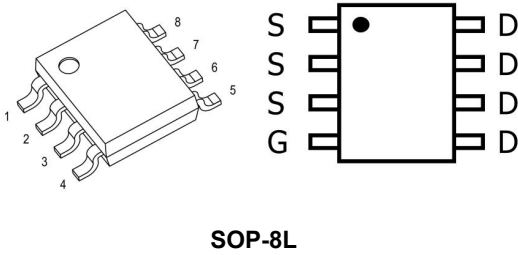
### Feature

- Fast Switching
- Low Gate Charge and Rdson
- Advanced Split Gate Trench Technology
- 100% Single Pulse avalanche energy Test

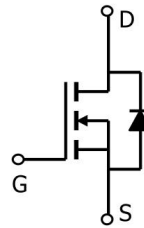
### Applications

- Power switching application
- PWM Application
- DC-DC Converter

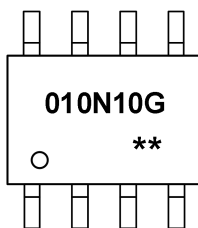
### Package



### Circuit diagram



### Marking



010N10G =Device Code  
\*\* =Week Code

**Absolute maximum ratings (Ta=25°C unless otherwise noted)**

Parameter	Symbol	Rating	Units
Drain-Source Voltage	$V_{DS}$	100	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	12	A
Pulsed Drain Current <sup>2</sup>	$I_{DM}$	48	A
Single Pulse Avalanche Energy <sup>3</sup>	$E_{AS}$	156	mJ
Total Power Dissipation <sup>4</sup>	$P_D$	3.5	W
Thermal Resistance Junction-Ambient <sup>1</sup>	$R_{\theta JA}$	36	°C/W
Storage Temperature Range	$T_{STG}$	-55 to 150	°C
Operating Junction Temperature Range	$T_J$	-55 to 150	°C

**Electrical characteristics (Ta=25°C, unless otherwise noted)**

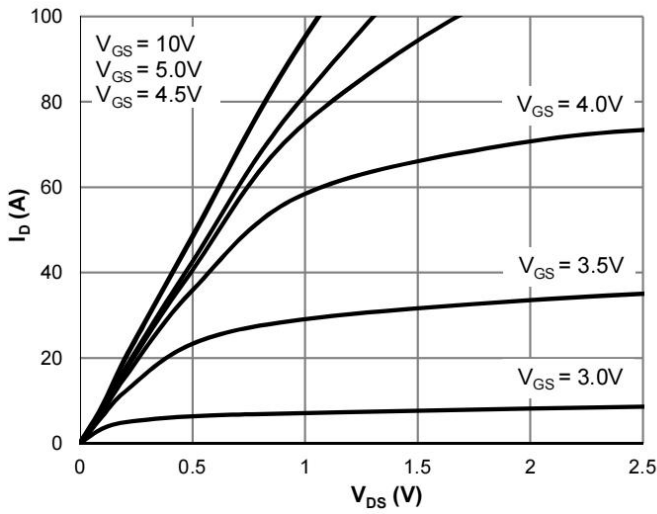
Parameter	Symbol	Conditions	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-Source Breakdown Voltage	$BV_{DSS}$	$V_{GS}=0V, I_D=250\mu A$	100	---	---	V
Drain-Source Leakage Current	$I_{DSS}$	$V_{DS}=80V, V_{GS}=0V, T_J=25^\circ C$	---	---	1	$\mu A$
Gate-Source Leakage Current	$I_{GSS}$	$V_{GS}=\pm 20V, V_{DS}=0V$	---	---	±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{GS}=V_{DS}, I_D=250\mu A$	1.2	1.9	2.5	V
Static Drain-Source On-Resistance <sup>2</sup>	$R_{DS(on)}$	$V_{GS}=10V, I_D=10A$	---	10	14	mΩ
		$V_{GS}=4.5V, I_D=8A$	---	13	18	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS}=50V, V_{GS}=0V, f=1MHz$	---	2535	---	pF
Output Capacitance	$C_{oss}$		---	189	---	
Reverse Transfer Capacitance	$C_{rss}$		---	12	---	
<b>Switching Characteristics</b>						
Total Gate Charge (4.5V)	$Q_g$	$V_{DS}=50V, V_{GS}=10V, I_D=20A$	---	44	---	nC
Gate-Source Charge	$Q_{gs}$		---	15	---	
Gate-Drain Charge	$Q_{gd}$		---	7	---	
Turn-On Delay Time	$T_{d(on)}$	$V_{DD}=50V, V_{GS}=10V, R_L=2.5\Omega, R_G=6\Omega$	---	8	---	ns
Rise Time	$T_r$		---	3	---	
Turn-Off Delay Time	$T_{d(off)}$		---	31	---	
Fall Time	$T_f$		---	5	---	
<b>Source-Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>2</sup>	$V_{SD}$	$V_{GS}=0V, I_S=1A, T_J=25^\circ C$	---	---	1.2	V

Note :

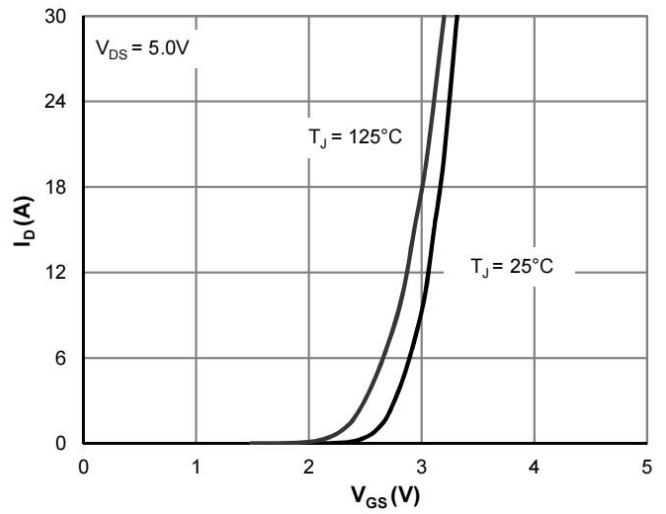
- Surface Mounted on FR4 Board,  $t \leq 10$  sec.
- The data tested by pulsed, pulse width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$
- The EAS data shows Max. rating. The test condition is  $V_{DD}=50V, V_{GS}=10V, L=0.5mH, R_g=25\Omega$
- The power dissipation is limited by 150°C junction temperature



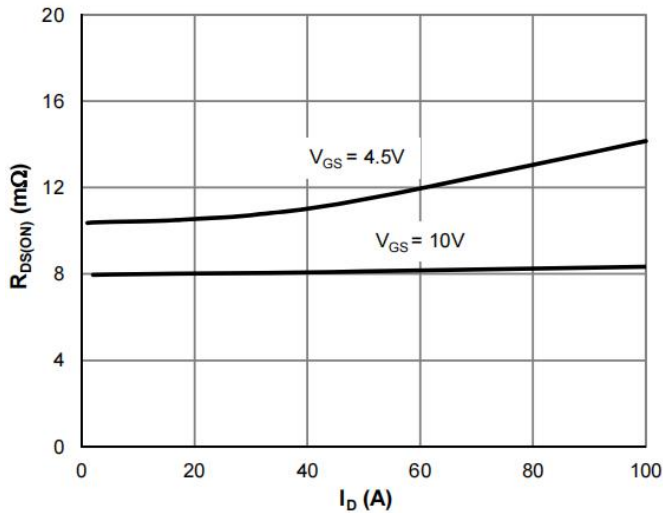
Typical Characteristics



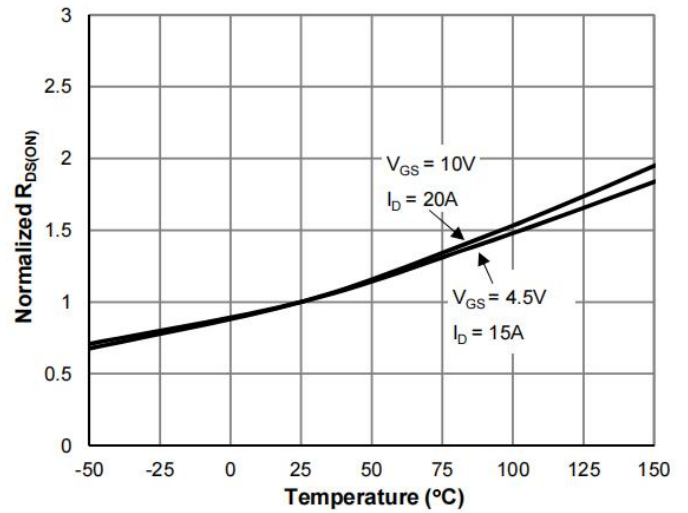
Typical Output Characteristics



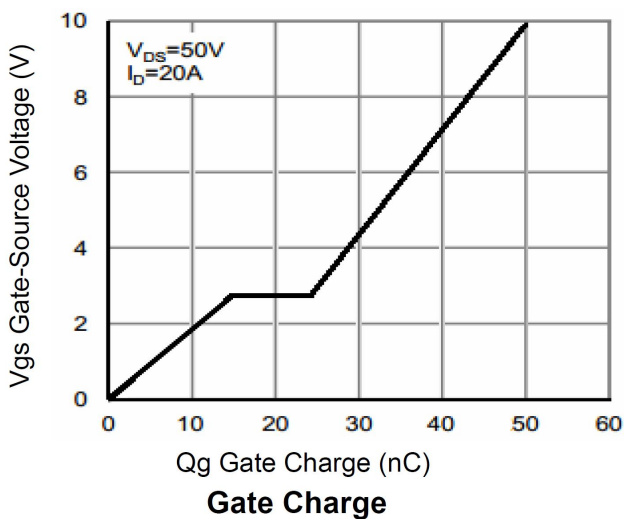
Transfer Characteristics



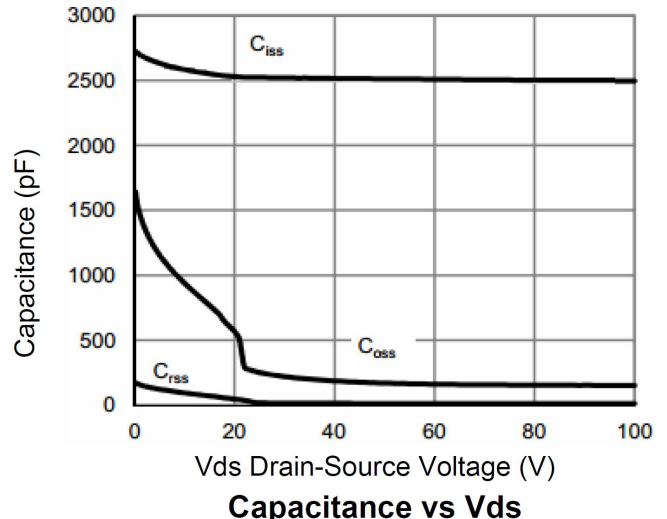
On-Resistance vs. Drain Current



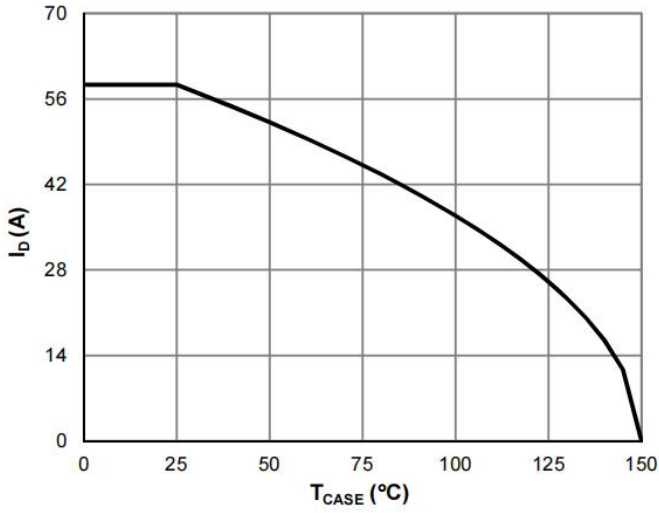
On-Resistance vs. Junction Temperature



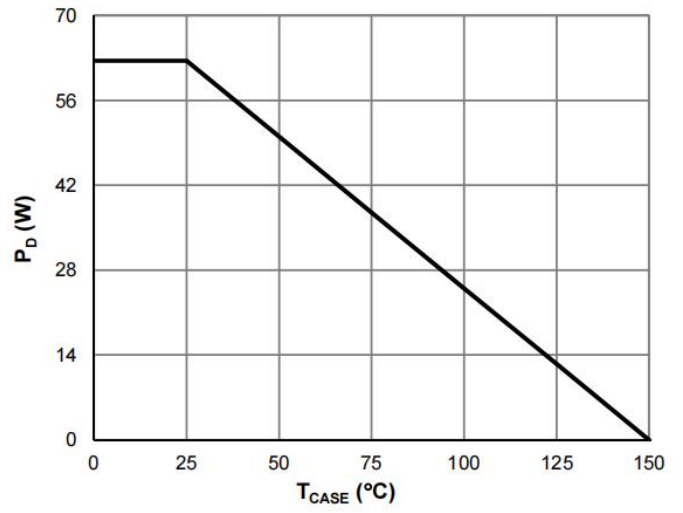
Gate Charge



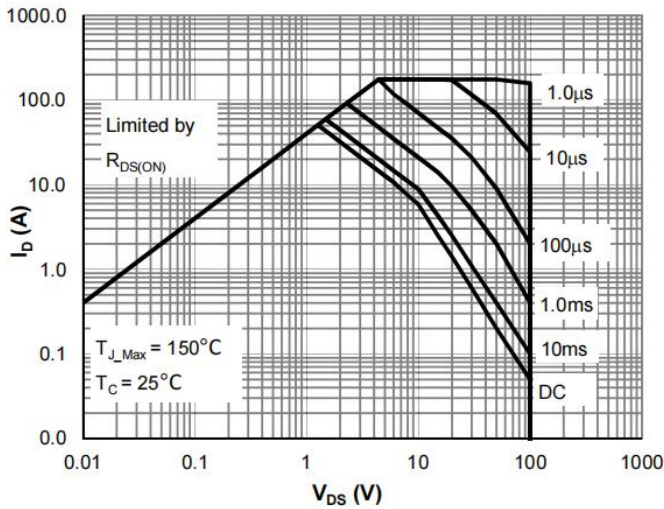
Capacitance vs Vds



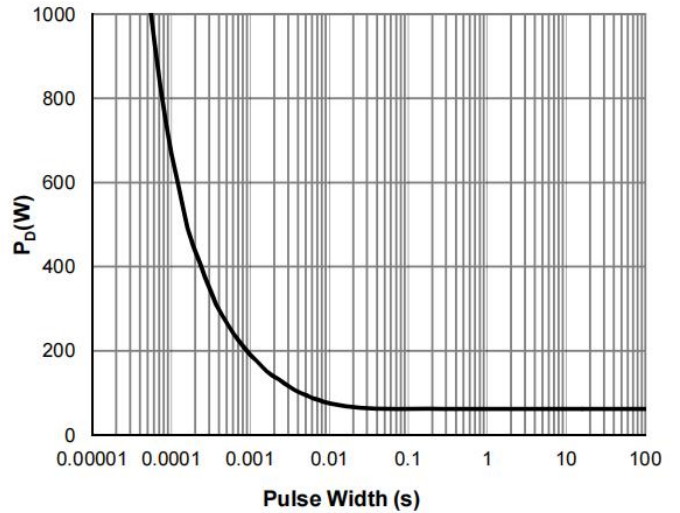
Current De-rating



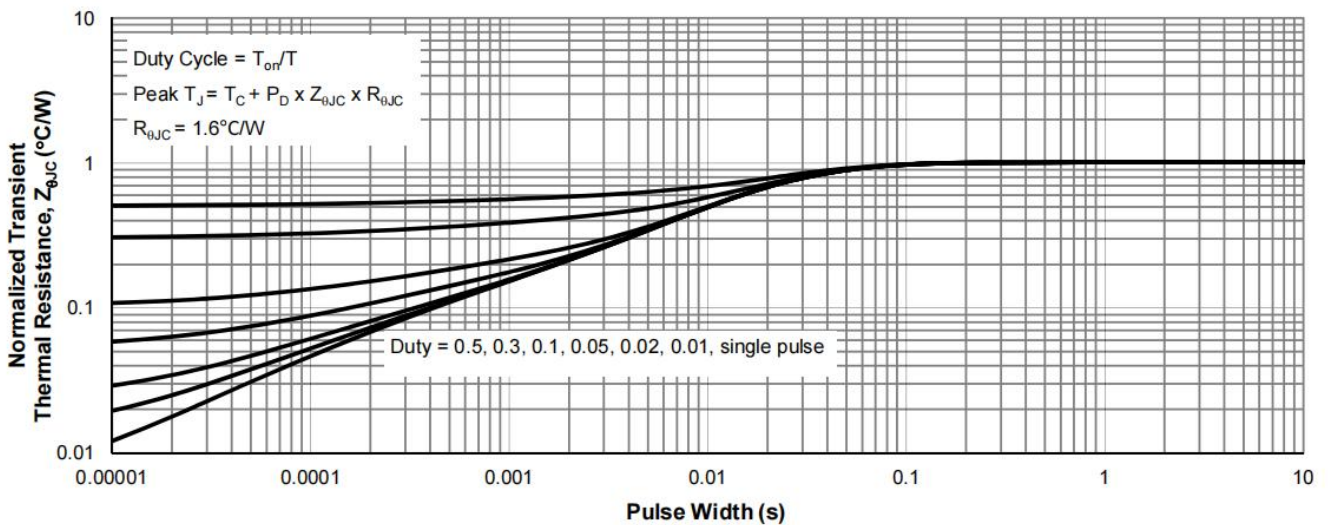
Power De-rating



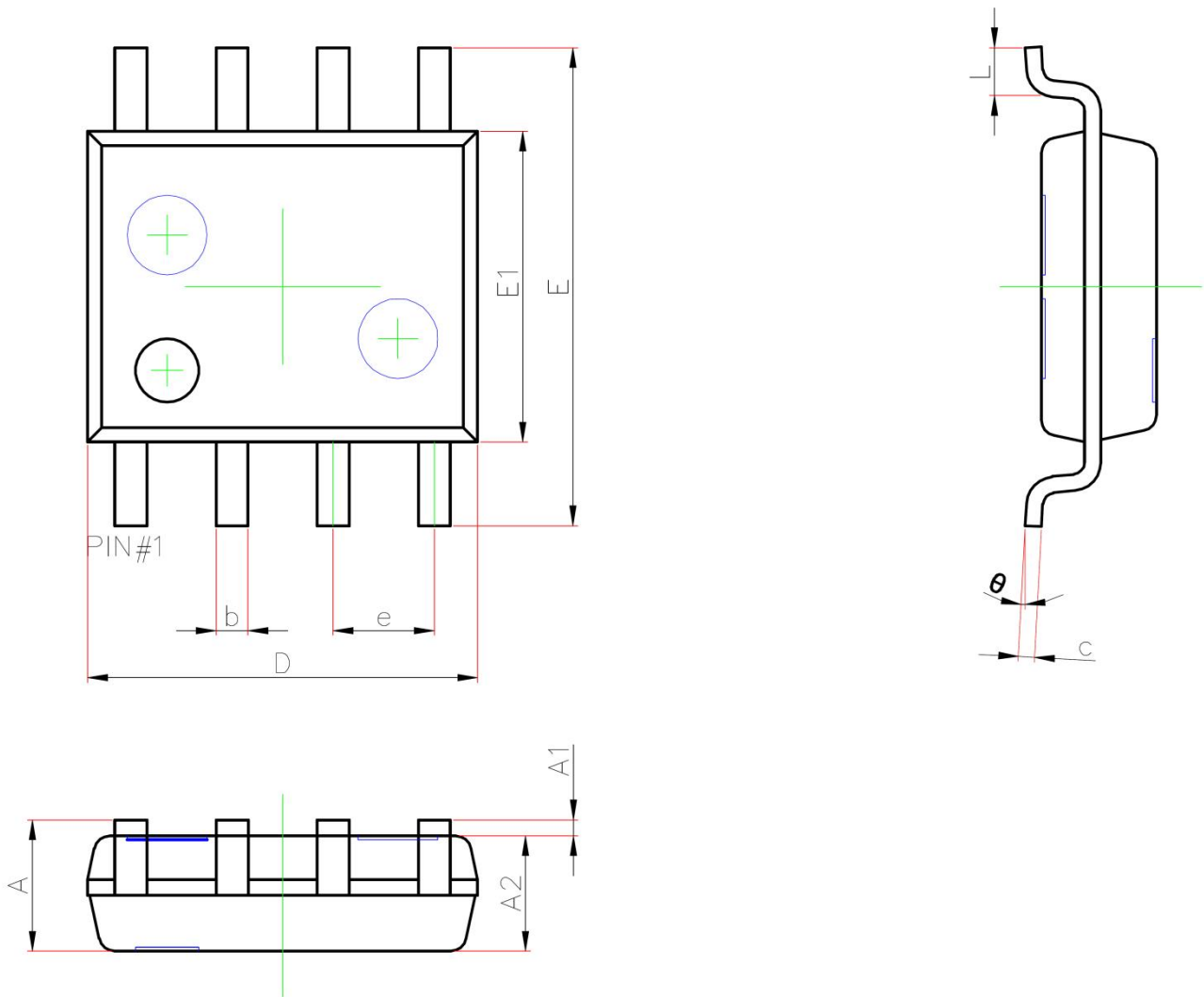
Maximum Safe Operating Area



Single Pulse Power Rating, Junction-to-Case



Normalized Maximum Transient Thermal Impedance



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
$\theta$	0°	8°

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