

Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	I_D
-40V	15mΩ@-10V	-13A
	20mΩ@-4.5V	

Feature

- Fast switching
- Low gate charge and $R_{DS(on)}$

Application

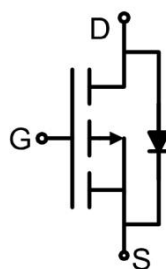
- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

Package

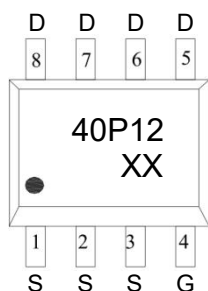


SOP-8

Circuit diagram



Marking



Absolute maximum ratings ($T_A=25^{\circ}\text{C}$ unless otherwise noted)

Parameter	Symbol	Value	Unit
Drain-Source Voltage	V_{DS}	-40	V
Gate-Source Voltage	V_{GS}	± 20	V
Continuous Drain Current	I_D	-13	A
Pulsed Drain Current	I_{DM}	-52	A
Single Pulse Avalanche Energy ¹⁾	E_{AS}	48	mJ
Power Dissipation	P_D	2.5	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	50	$^{\circ}\text{C}/\text{W}$
Operating Junction Temperature	T_J	-55 ~ +150	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-55 ~ +150	$^{\circ}\text{C}$

Electrical characteristics ($T_A=25^{\circ}\text{C}$, unless otherwise noted)

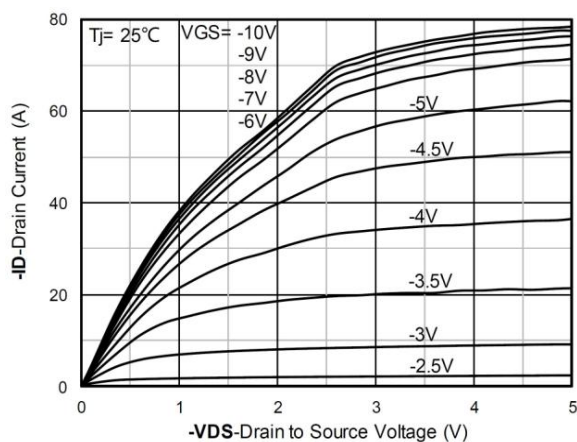
Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static Characteristics						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0V, I_D=-250\mu A$	-40			V
Zero gate voltage drain current	I_{DSS}	$V_{DS}=-32V, V_{GS}=0V$			-1	μA
Gate-body leakage current	I_{GSS}	$V_{DS}=0V, V_{GS}=\pm 20V$			± 100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=-250\mu A$	-1	-1.5	-2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=-10V, I_D=-10A$		12	15	m Ω
		$V_{GS}=-4.5V, I_D=-8A$		15	20	
Dynamic characteristics ²⁾						
Input Capacitance	C_{iss}	$V_{DS}=-20V, V_{GS}=0V, f=1MHz$		2830		pF
Output Capacitance	C_{oss}			268		
Reverse Transfer Capacitance	C_{rss}			204		
Total Gate Charge	Q_g	$V_{DS}=-20V, V_{GS}=-4.5V$ $I_D=-10A$		31		nC
Gate-Source Charge	Q_{gs}			9.8		
Gate-Drain Charge	Q_{gd}			10		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=-20V, V_{GS}=-10V$ $I_D=-10A, R_G=1\Omega$		35		nS
Turn-on rise time	t_r			31		
Turn-off delay time	$t_{d(off)}$			87		
Turn-off fall time	t_f			10		
Source-Drain Diode characteristics						
Diode Forward Current	I_S				-13	A
Diode Forward voltage	V_{SD}	$V_{GS}=0V, I_S=-1A$			-1.2	V
Reverse Recovery Time	T_{rr}	$I_F=-10A, di/dt=-100A/\mu s$ $T_J=25^{\circ}C$		37		nS
Reverse Recovery Charge	Q_{rr}			42		nC

Notes:

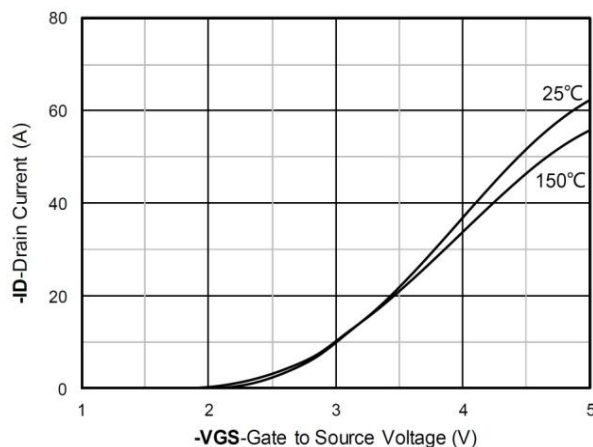
1) The EAS Test condition is $V_{DD}=-20\text{V}, V_{GS}=-10\text{V}, L=0.1\text{mH}, R_G=25\Omega$.

2) Guaranteed by design, not subject to production testing.

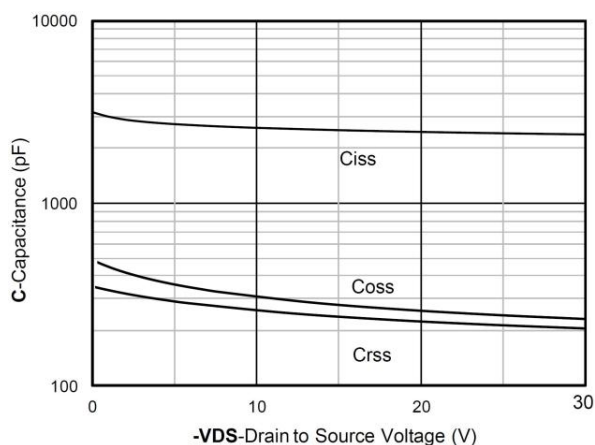
Typical Characteristics



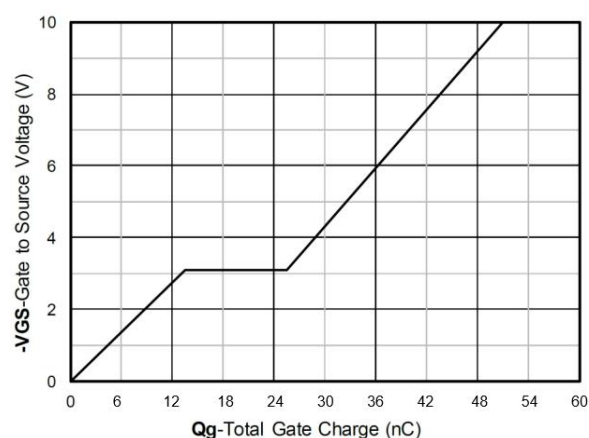
Output Characteristics



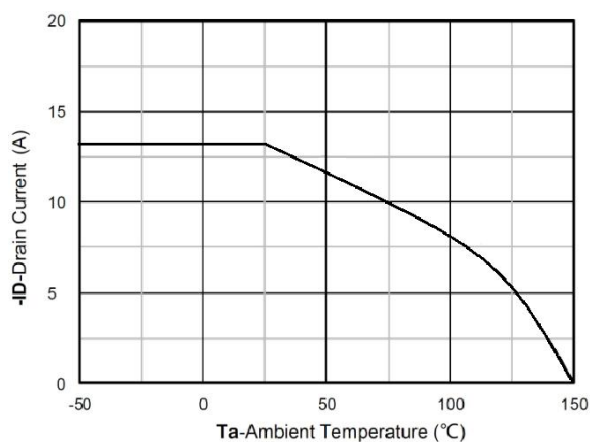
Transfer Characteristics



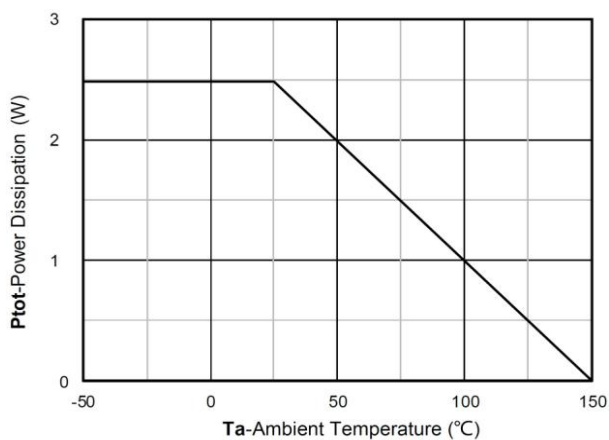
Capacitance Characteristics



Gate Charge

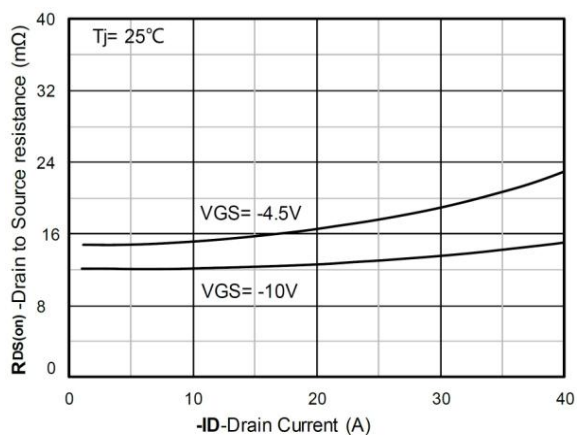


Current dissipation

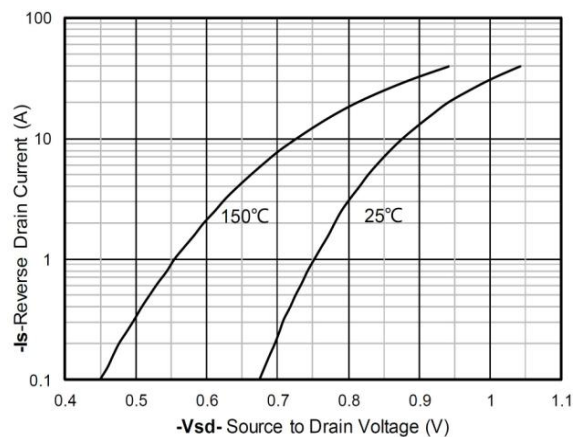


Power dissipation

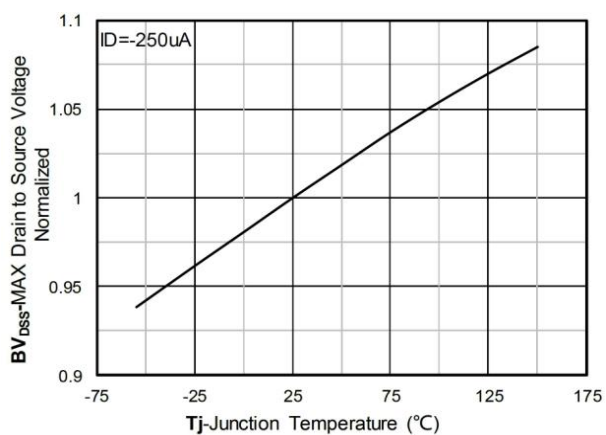
Typical Characteristics



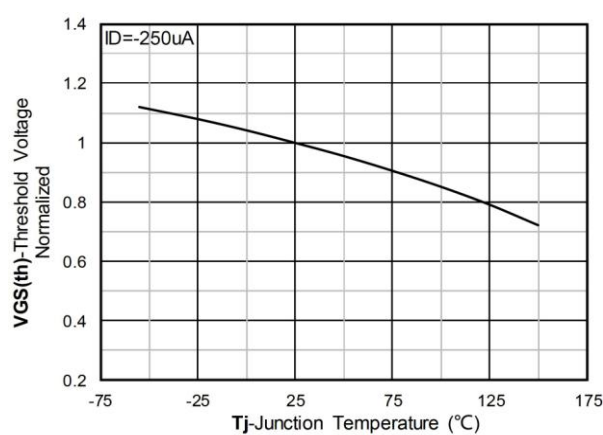
RDS(on) VS Drain Current



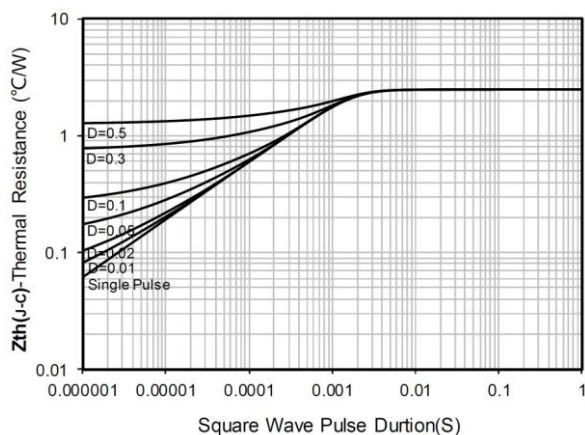
Forward characteristics of reverse diode



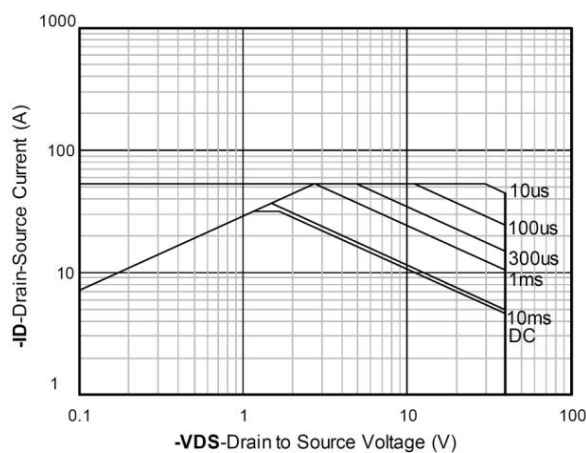
Normalized breakdown voltage



Normalized Threshold voltage

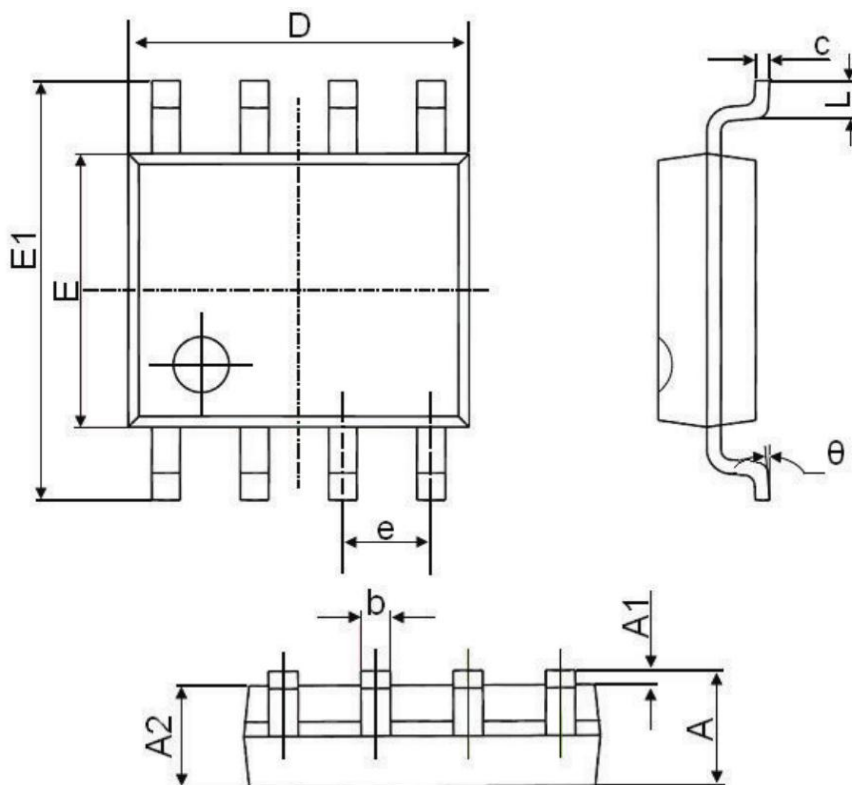


Maximum Transient Thermal Impedance



Safe Operation Area

SOP-8 Package Information



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min.	Max.	Min.	Max.
A	1.350	1.750	0.053	0.069
A1	0.100	0.250	0.004	0.010
A2	1.350	1.550	0.053	0.061
b	0.330	0.510	0.013	0.020
c	0.170	0.250	0.006	0.010
D	4.800	5.000	0.050	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 BSC.		0.050 BSC.	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°