

### Product Summary

$V_{(BR)DSS}$	$R_{DS(on)MAX}$	$I_D$
30V	11.5mΩ@10V	10A
	15.5mΩ@4.5V	

### Feature

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

### Application

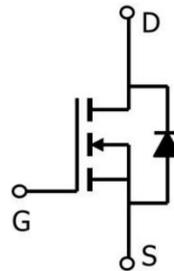
- Power switching application
- Uninterruptible power supply
- Hard switched and high frequency circuits

### 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	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	$\pm 20$	V
Continuous Drain Current	$I_D$	10	A
Pulsed Drain Current	$I_{DM}$	40	A
Single Pulse Avalanche Energy <sup>1)</sup>	$E_{AS}$	20	mJ
Power Dissipation	$P_D$	3	W
Thermal Resistance Junction to Ambient	$R_{\theta JA}$	41.7	$^\circ\text{C}/\text{W}$
Operating Junction Temperature	$T_J$	-55 ~ +150	$^\circ\text{C}$
Storage Temperature	$T_{STG}$	-55 ~ +150	$^\circ\text{C}$

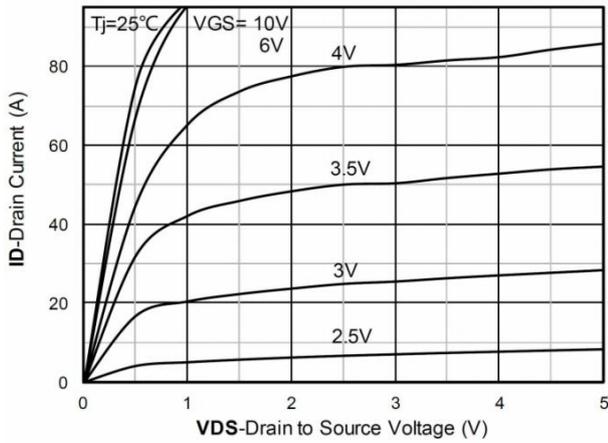
### Electrical characteristics ( $T_A=25^\circ\text{C}$ , unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS}=0\text{V}, I_D=250\mu\text{A}$	30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS}=24\text{V}, V_{GS}=0\text{V}$			1	$\mu\text{A}$
Gate-body leakage current	$I_{GSS}$	$V_{DS}=0\text{V}, V_{GS}=\pm 20\text{V}$			$\pm 100$	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}, I_D=250\mu\text{A}$	1.2	1.7	2.5	V
Drain-source on-resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}, I_D=12\text{A}$		9.5	11.5	m $\Omega$
		$V_{GS}=4.5\text{V}, I_D=10\text{A}$		12	15.5	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS}=15\text{V}, V_{GS}=0\text{V}, f=1\text{MHz}$		1321		pF
Output Capacitance	$C_{oss}$			180		
Reverse Transfer Capacitance	$C_{rss}$			160		
Total Gate Charge	$Q_g$	$V_{DS}=15\text{V}, V_{GS}=10\text{V}, I_D=25\text{A}$		2.3		nC
Gate-Source Charge	$Q_{gs}$			7		
Gate-Drain Charge	$Q_{gd}$			4.5		
Turn-on delay time	$t_{d(on)}$	$V_{DS}=15\text{V}, V_{GS}=10\text{V}, I_D=20\text{A}$ $R_G=3\Omega$		4.5		nS
Turn-on rise time	$t_r$			17.6		
Turn-off delay time	$t_{d(off)}$			16.7		
Turn-off fall time	$t_f$			58.6		
<b>Source-Drain Diode characteristics</b>						
Diode Forward Current	$I_S$				10	A
Diode Forward voltage	$V_{SD}$	$V_{GS}=0\text{V}, I_S=1\text{A}$			1.2	V
Reverse recovery time	$T_{rr}$	$I_S=10\text{A}, di/dt=-100\text{A}/\mu\text{s}$		27		nS
Reverse recovery charge	$Q_{rr}$	$T_J=25^\circ\text{C}$		21		nC

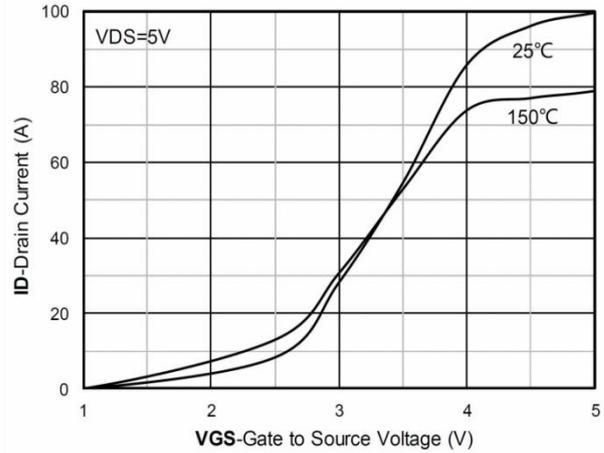
Notes:

- 1) The EAS Test condition is  $V_{DD}=20\text{V}, V_{GS}=10\text{V}, L=0.5\text{mH}, R_G=25\Omega$ .
- 2) Guaranteed by design, not subject to production testing.

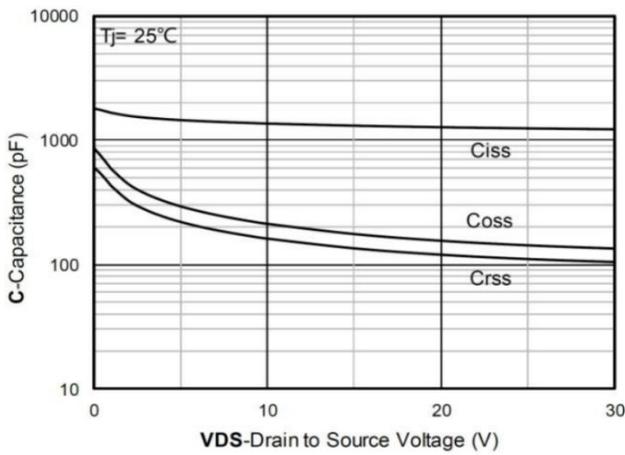
### Typical Characteristics



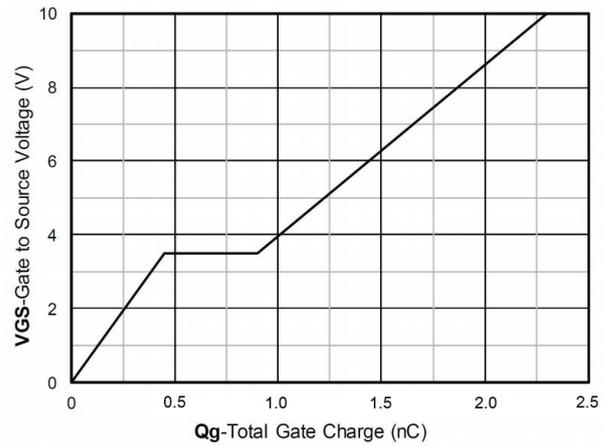
Output Characteristics



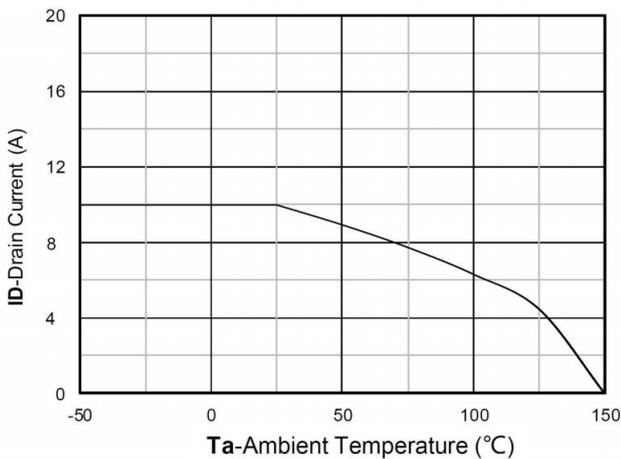
Transfer Characteristics



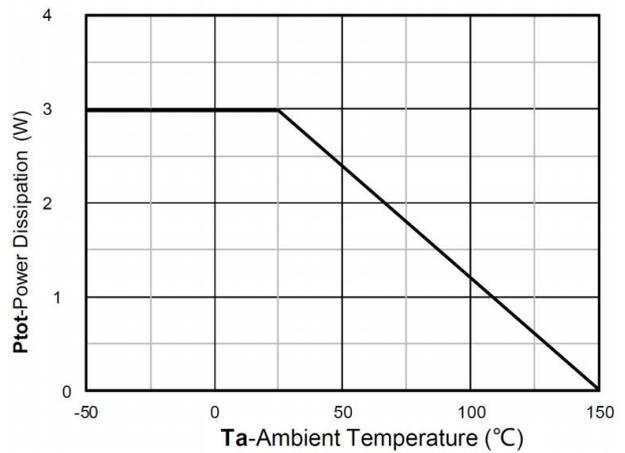
Capacitance Characteristics



Gate Charge

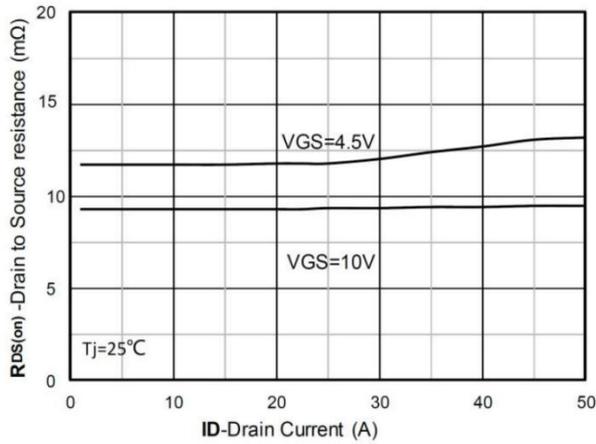


Current dissipation

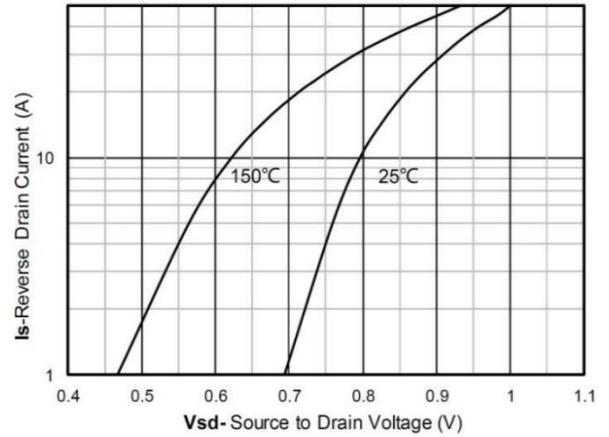


Power dissipation

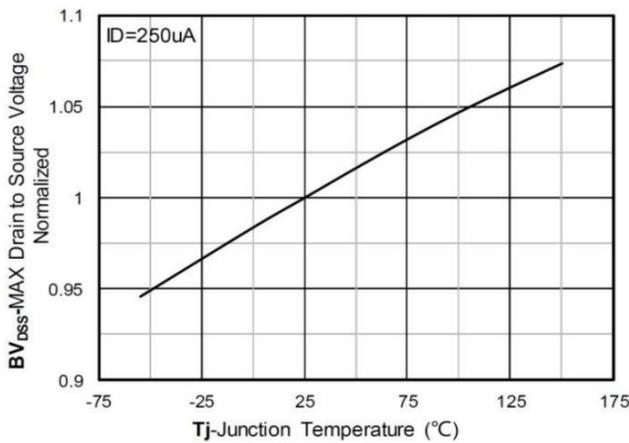
### Typical Characteristics



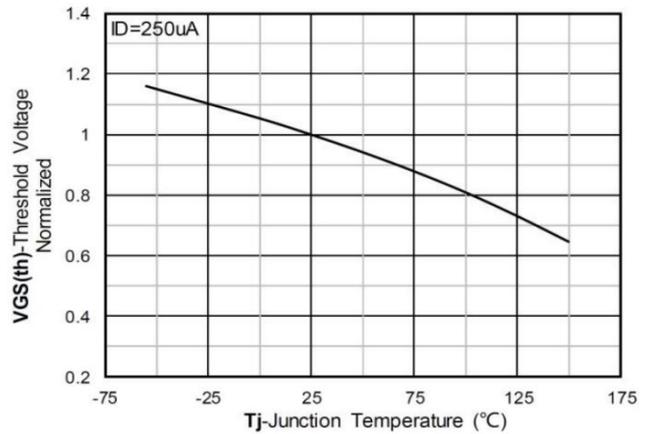
RDS(on) VS Drain Current



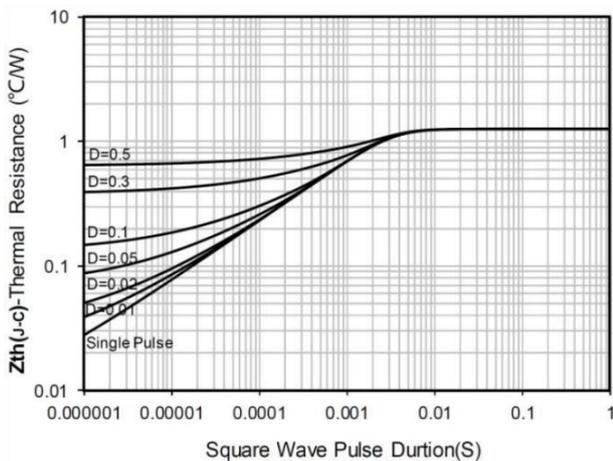
Forward characteristics of reverse diode



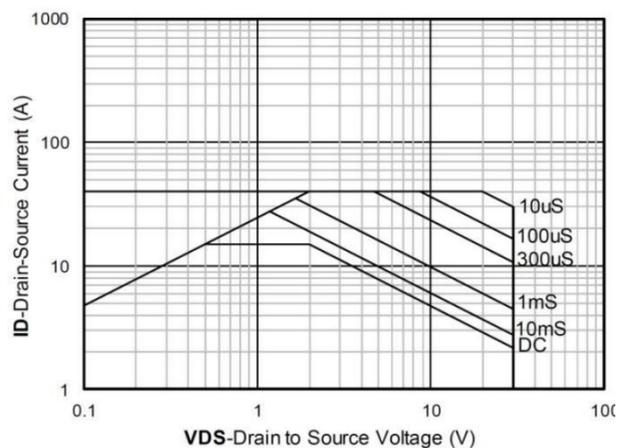
Normalized breakdown voltage



Normalized Threshold voltage

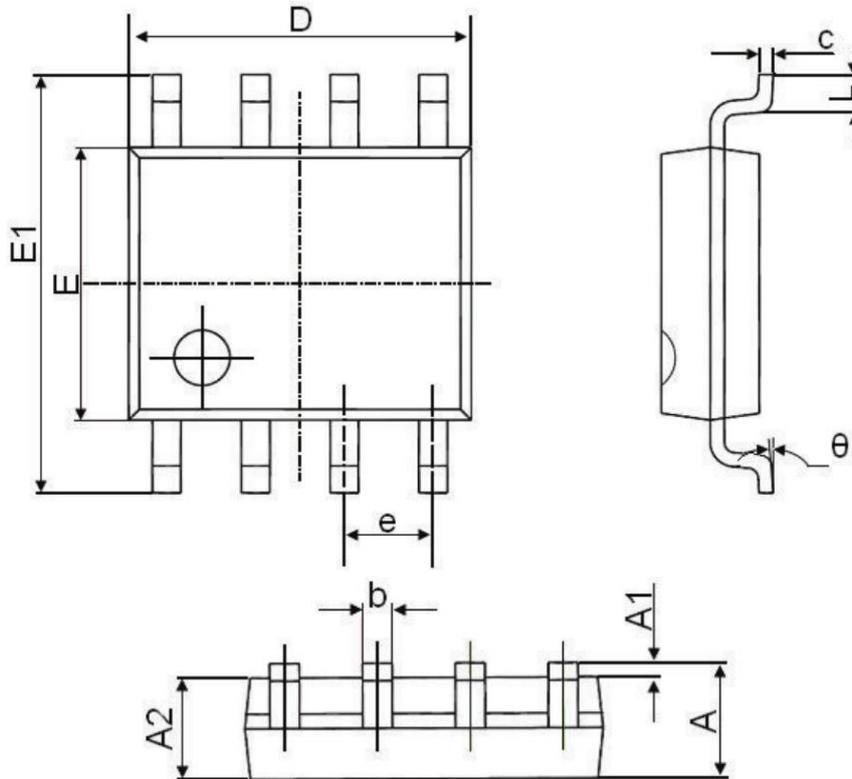


Maximum Transient Thermal Impedance



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	0.007	0.010
D	4.800	5.000	0.189	0.197
E	3.800	4.000	0.150	0.157
E1	5.800	6.200	0.228	0.244
e	1.270 REF.		1.270 REF.	
L	0.400	1.270	0.016	0.050
θ	0°	8°	0°	8°