

### Product Summary

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

### Feature

- Advanced trench process technology
- High Density Cell Design For Ultra Low On-Resistance
- Suffix "-Q1" for AEC-Q101

### Application

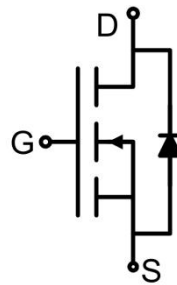
- Power Management in Notebook Computer, Portable Equipment and Battery Powered Systems

### Package

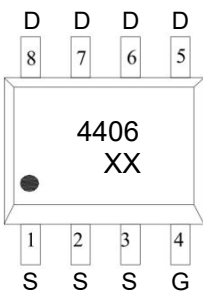


SOP-8

### Circuit diagram



### Marking



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

Parameter	Symbol	Value	Unit
Drain-Source Voltage	$V_{DS}$	30	V
Gate-Source Voltage	$V_{GS}$	±20	V
Continuous Drain Current	$I_D$	11.5	A
Pulsed Drain Current	$I_{DM}$	80	A
Power Dissipation	$P_D$	3	W
Thermal Resistance from Junction to Ambient	$R_{\theta JA}$	100	°C/W
Junction Temperature	$T_J$	150	°C
Storage Temperature	$T_{STG}$	-55 ~ +150	°C

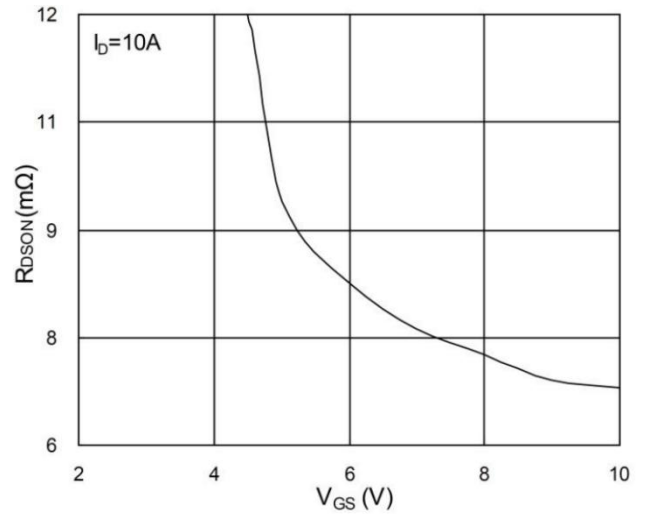
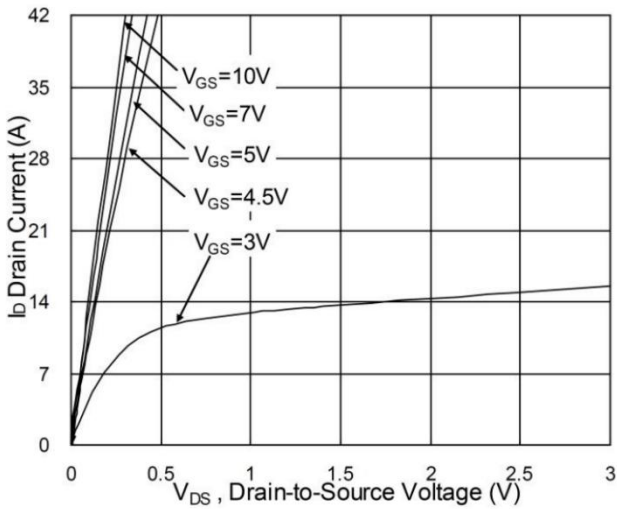
### Electrical characteristics (Ta=25 °C, unless otherwise noted)

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
<b>Static Characteristics</b>						
Drain-source breakdown voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	30			V
Zero gate voltage drain current	$I_{DSS}$	$V_{DS} = 24V, V_{GS} = 0V$			1	μA
Gate-body leakage current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			±100	nA
Gate threshold voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	1		3	V
Drain-source on-resistance <sup>1)</sup>	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 11.5A$		9.5	11.5	mΩ
		$V_{GS} = 4.5V, I_D = 10A$		12.0	15.5	
<b>Dynamic characteristics<sup>2)</sup></b>						
Input Capacitance	$C_{iss}$	$V_{DS} = 15V, V_{GS} = 0V, f = 1MHz$		1317		pF
Output Capacitance	$C_{oss}$			163		
Reverse Transfer Capacitance	$C_{rss}$			131		
Total Gate Charge	$Q_g$	$V_{DS} = 15V, V_{GS} = 10V, I_D = 11.5A$		12.6		nC
Gate-Source Charge	$Q_{gs}$			4.2		
Gate-Drain Charge	$Q_{gd}$			5.1		
Turn-on delay time	$t_{d(on)}$	$V_{DD} = 15V, V_{GS} = 10V, I_D = 11.5A, R_{GEN} = 1.2\Omega$		6.2		nS
Turn-on rise time	$t_r$			59		
Turn-off delay time	$t_{d(off)}$			27.6		
Turn-off fall time	$t_f$			8.4		
<b>Source-Drain Diode characteristics</b>						
Diode Forward voltage	$V_{DS}$	$V_{GS} = 0V, I_S = 10A$			1.2	V

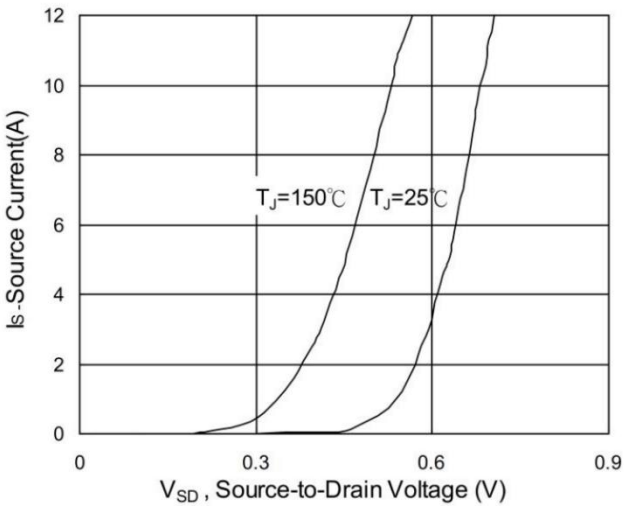
Notes:

- 1) Pulse Test: Pulse Width < 300μs, Duty Cycle ≤2%.
- 2) Guaranteed by design, not subject to production testing.

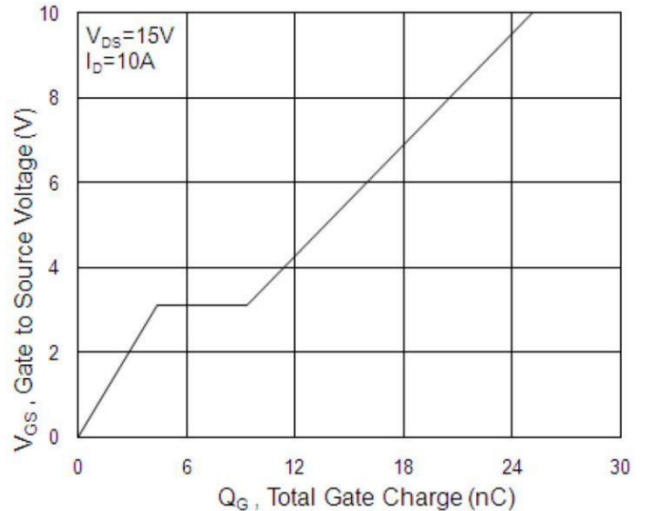
## Typical Characteristics



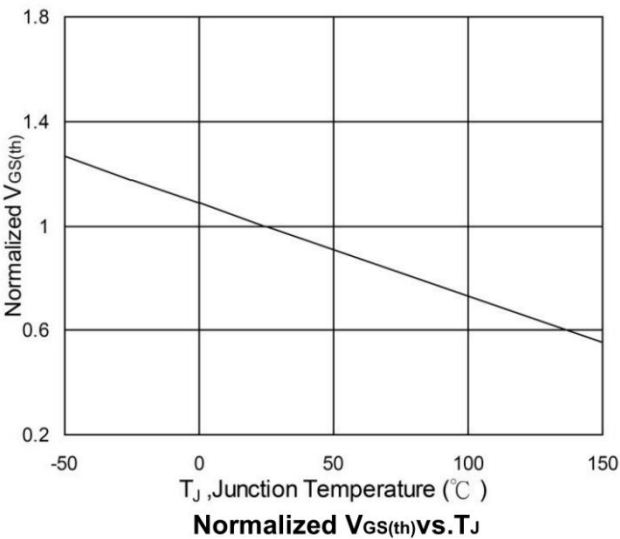
### Typical Output Characteristics



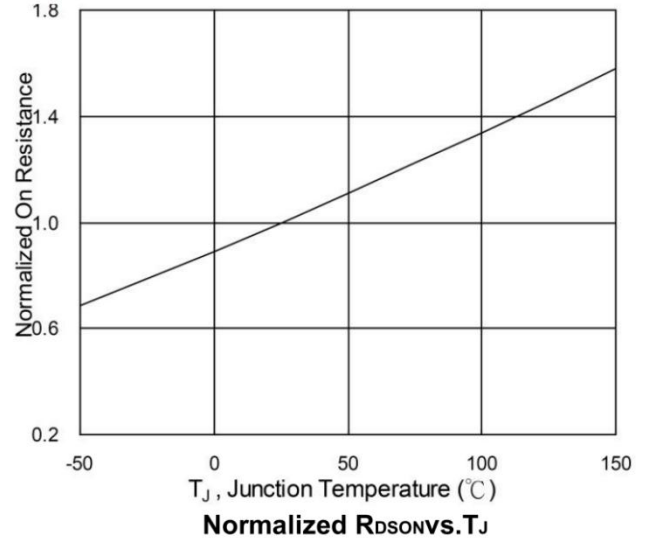
### On-Resistance vs. Gate-Source



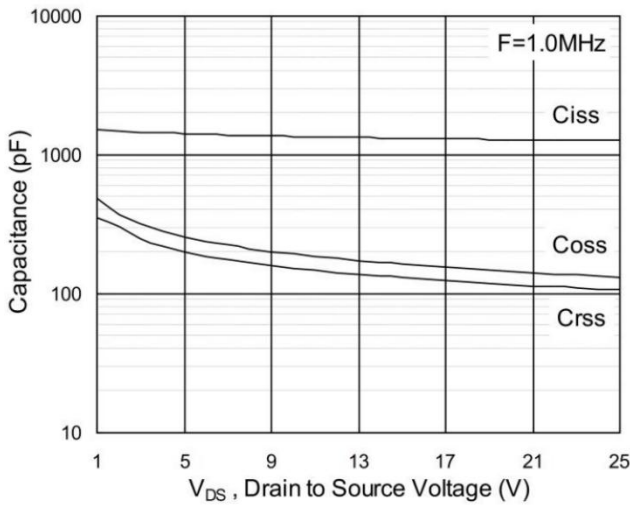
### Forward Characteristics of reverse



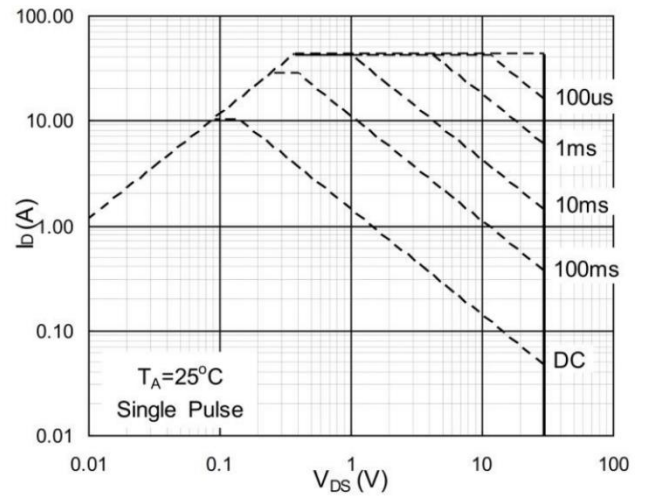
### Gate-Charge Characteristics



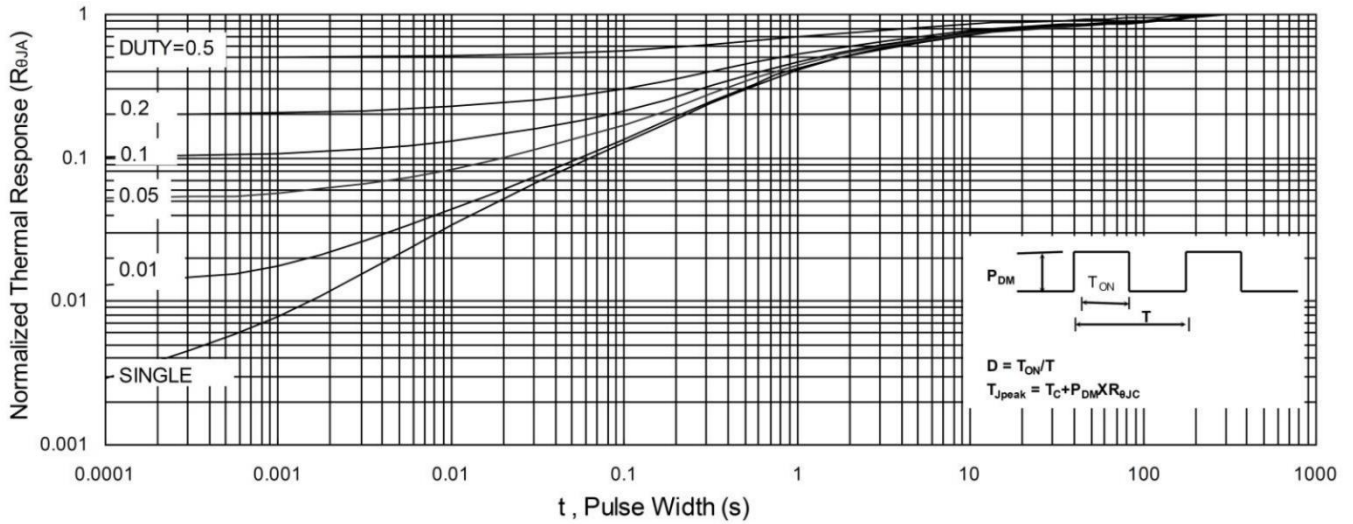
## Typical Characteristics



Capacitance

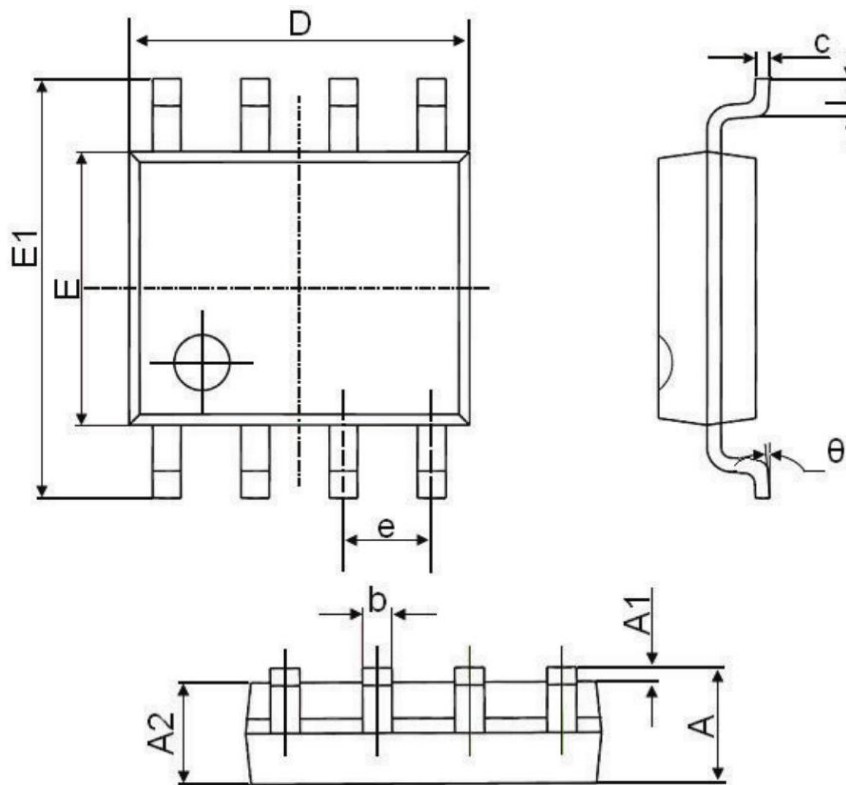


Safe Operating Area



Normalized Maximum Transient Thermal Impedance

## 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	4.700	5.100	0.185	0.200
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
theta	0°	8°	0°	8°