

**Product Summary**

V <sub>(BR)DSS</sub>	R <sub>DS(on)TYP</sub>	I <sub>D</sub>
-30V	7.0mΩ@-10V	-12A
	11.0mΩ@-4.5V	

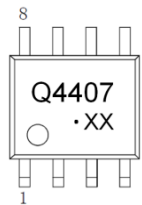
**Feature**

- Trench Technology Power MOSFET
- Low R<sub>DS(ON)</sub>
- Low Gate Charge
- Low Gate Resistance
- 100% UIS Tested

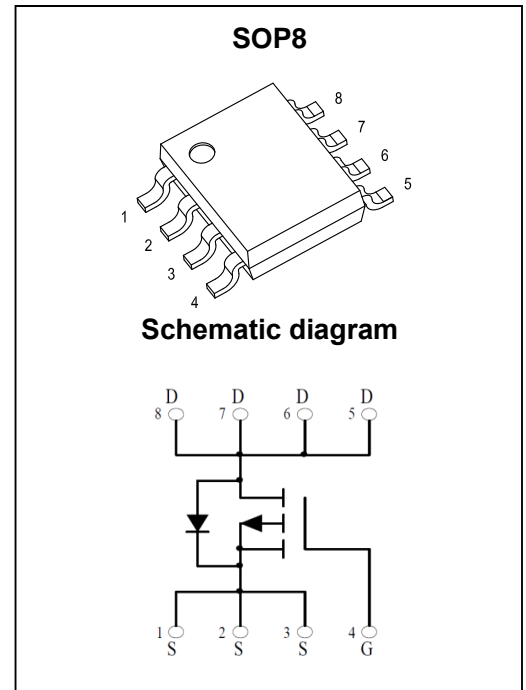
**Application**

- Power Switching Application

**MARKING:**



Q4407 = Device Code;  
 XX = Date Code;  
 Solid Dot = Green Molding Compound Device;



**ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub> = 25°C unless otherwise noted)**

Parameter	Symbol	Value	Unit
Drain - Source Voltage	V <sub>DS</sub>	-30	V
Gate - Source Voltage	V <sub>GS</sub>	±20	V
Continuous Drain Current <sup>1,5</sup>	I <sub>D</sub>	-12	A
		T <sub>A</sub> = 25°C	
Pulsed Drain Current <sup>2</sup>	I <sub>DM</sub>	-48	A
Single Pulsed Avalanche Current <sup>3</sup>	I <sub>AS</sub>	-29	A
Single Pulsed Avalanche Energy <sup>3</sup>	E <sub>AS</sub>	380	mJ
Power Dissipation <sup>5</sup>	P <sub>D</sub>	1.7	W
		T <sub>A</sub> = 25°C	
Thermal Resistance from Junction to Ambient <sup>6</sup>	R <sub>θJA</sub>	75	°C/W
Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature	T <sub>STG</sub>	-55~ +150	°C

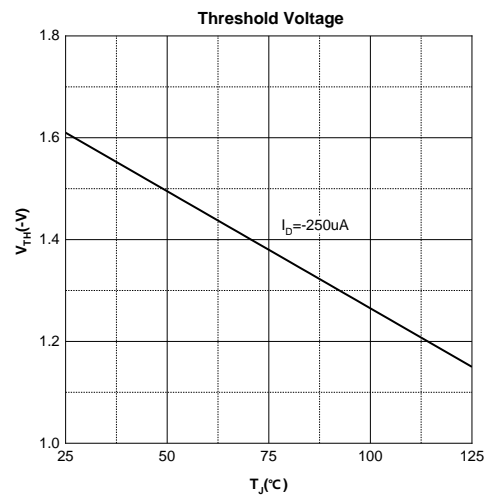
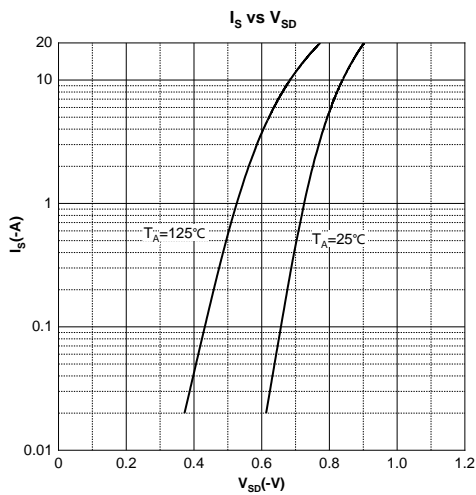
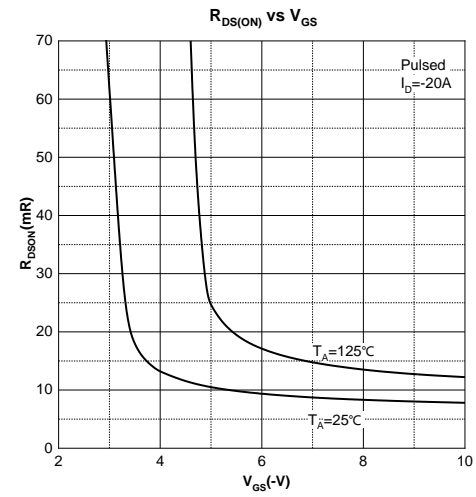
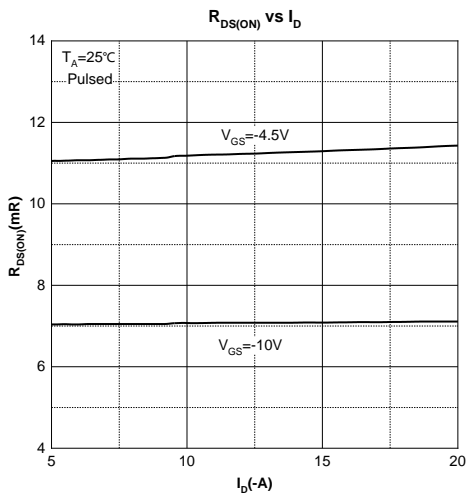
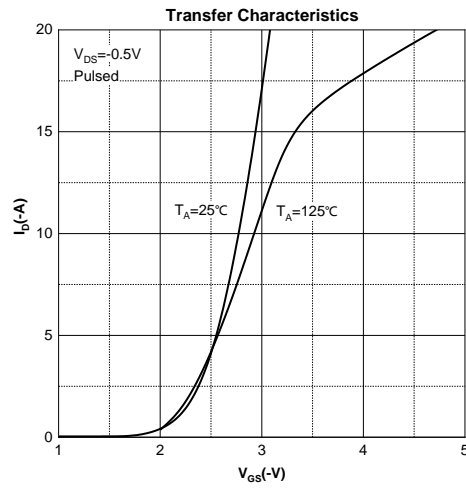
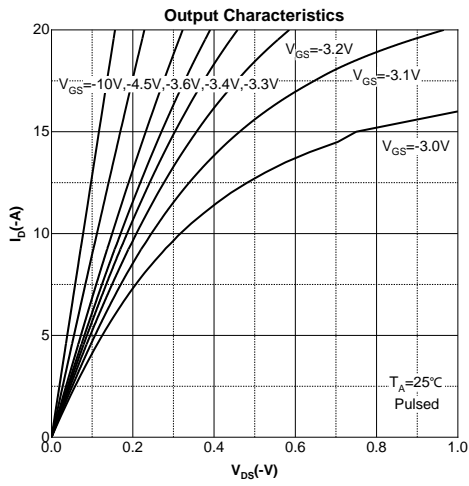
**MOSFET ELECTRICAL CHARACTERISTICS ( $T_J = 25^\circ\text{C}$  unless otherwise noted)**

Parameter	Symbol	Test Condition	Min	Type	Max	Unit
<b>Off Characteristics</b>						
Drain - Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = -250\mu A$	-30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30V, V_{GS} = 0V$			-1	$\mu A$
Gate - Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$			$\pm 100$	nA
<b>On Characteristics<sup>4</sup></b>						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\mu A$	-1.0	-1.6	-3.0	V
Drain-source On-resistance	$R_{DS(on)}$	$V_{GS} = -10V, I_D = -12A$		7.0	12	m $\Omega$
		$V_{GS} = -4.5V, I_D = -10A$		11.0	15	
<b>Dynamic Characteristics</b>						
Input Capacitance	$C_{iss}$	$V_{DS} = -15V, V_{GS} = 0V, f = 1MHz$		3073		pF
Output Capacitance	$C_{oss}$			532		
Reverse Transfer Capacitance	$C_{rss}$			481		
Gate Resistance	$R_g$	$V_{DS} = 0V, V_{GS} = 0V, f = 1MHz$		4.8		$\Omega$
<b>Switching Characteristics</b>						
Total Gate Charge	$Q_g$	$V_{DS} = -15V, V_{GS} = 10V, I_D = -12A$		63		nC
Gate-source Charge	$Q_{gs}$			8		
Gate-drain Charge	$Q_{gd}$			14		
Turn-on Delay Time	$t_{d(on)}$	$V_{DD} = -15V, V_{GS} = -10V,$ $R_L = 1.25\Omega, R_G = 3\Omega$		20		ns
Turn-on Rise Time	$t_r$			14		
Turn-off Delay Time	$t_{d(off)}$			57		
Turn-off Fall Time	$t_f$			27		
<b>Source - Drain Diode Characteristics</b>						
Diode Forward Voltage <sup>3</sup>	$V_{SD}$	$V_{GS} = 0V, I_S = -2A$			-1.2	V

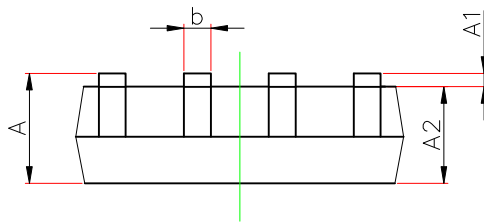
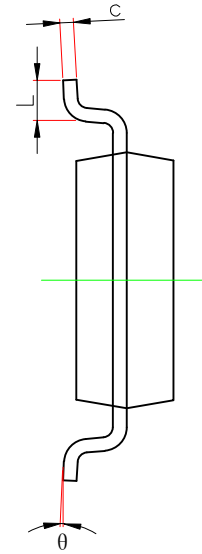
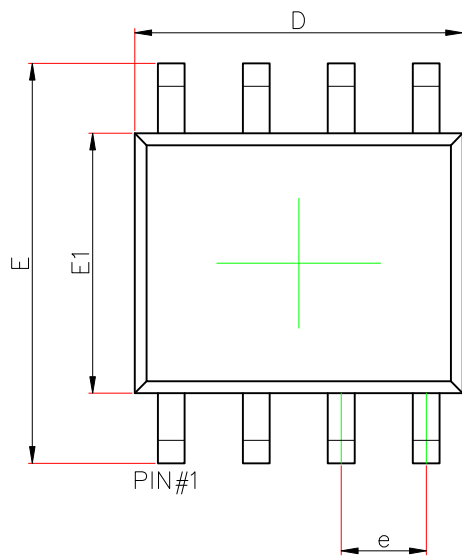
Notes :

- 1.The maximum current rating is limited by package.And device mounted on a large heatsink
- 2.Pulse Test : Pulse Width  $\leq 10\mu s$ , duty cycle  $\leq 1\%$ .
- 3.EAS condition:  $V_{DD} = -15V, V_{GS} = -10V, L = 0.5mH, R_G = 25\Omega$  Starting  $T_J = 25^\circ\text{C}$ .
- 4.Pulse Test : Pulse Width  $\leq 300\mu s$ , duty cycle  $\leq 2\%$ .
- 5.The power dissipation  $P_D$  is limited by  $T_{J(MAX)} = 150^\circ\text{C}$ .And device mounted on a large heatsink
- 6.Device mounted on  $1in^2$  FR-4 board with 2oz. Copper, in a still air environment with  $T_A = 25^\circ\text{C}$ .

## Typical Characteristics



## SOP8 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	0.156	0.250	0.006	0.010
D	4.700	5.100	0.185	0.201
e	1.270(BSC)		0.050(BSC)	
E	5.800	6.200	0.228	0.244
E1	3.700	4.100	0.146	0.161
L	0.400	1.270	0.016	0.05
θ	0°	8°	0°	8°