

**Description**

This -30V -12A P-Channel Power Trench MOSFET in a SOP-8 Plastic Package.

**Applications**

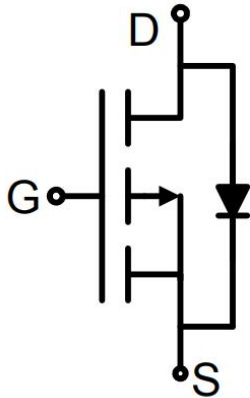
Power Management in Notebook computer, Portable Equipment and Battery powered systems.

**Features**

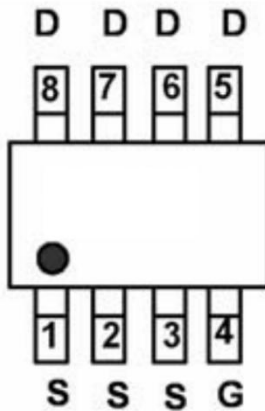
- $V_{DS} (V) = -30V$
- $I_D = -12 A (V_{GS} = \pm 25V)$
- $R_{DS(ON)} < 11m\Omega (V_{GS} = -10V)$
- Halogen-free Product.

$V_{DSS}$	$R_{DS(ON)} (Typ)$	$I_D$
-30V	11m $\Omega$	-12A

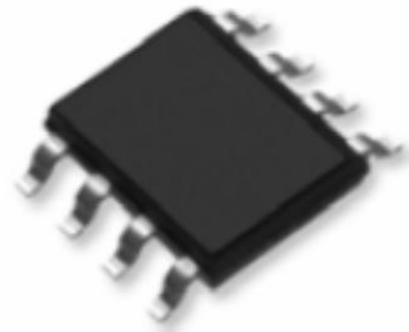
**Equivalent Circuit & Pinning**



Schematic diagram



Pin Assignment



SOP-8 top view

**Absolute Maximum Ratings(Ta=25°C)**

Parameter	Symbol	Rating	Unit
Drain-Source Voltage	V <sub>DSS</sub>	-30	V
Gate-Source Voltage	V <sub>GSS</sub>	±25	V
Continuous Drain Current <sup>A</sup>	I <sub>D</sub> (T <sub>a</sub> =25°C)	-12	A
Continuous Drain Current <sup>A</sup>	I <sub>D</sub> (T <sub>a</sub> =70°C)	-10	A
Pulsed Drain Current <sup>B</sup>	I <sub>DM</sub>	-60	A
Power Dissipation for Single Operation <sup>A</sup>	P <sub>D</sub> (T <sub>a</sub> =25°C)	3	W
Power Dissipation for Single Operation <sup>A</sup>	P <sub>D</sub> (T <sub>a</sub> =100°C)	2.1	W
Maximum Junction Temperature	T <sub>J</sub>	150	°C
Storage Temperature Range	T <sub>stg</sub>	-55 ~ 150	°C
Thermal Resistance-Junction to Ambient <sup>A</sup>	R <sub>θJA</sub> ( t ≤ 10s )	40	°C/W
Thermal Resistance-Junction to Ambient <sup>A</sup>	R <sub>θJA</sub>	75	°C/W
Maximum Junction-to-Lead <sup>C</sup>	R <sub>θJL</sub>	30	°C/W

**Note:**

A: The value of R<sub>θJA</sub> is measured with the device mounted on 1in<sup>2</sup> FR-4 board with 2oz. Copper, in a still air environment with T<sub>A</sub> =25°C. The value in any given application depends on the user's specific board design. The current rating is based on the t ≤ 10s thermal resistance rating.

B: Repetitive rating, pulse width limited by junction temperature.

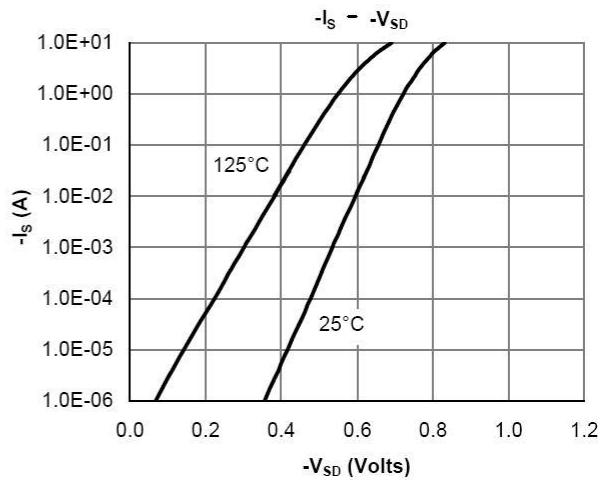
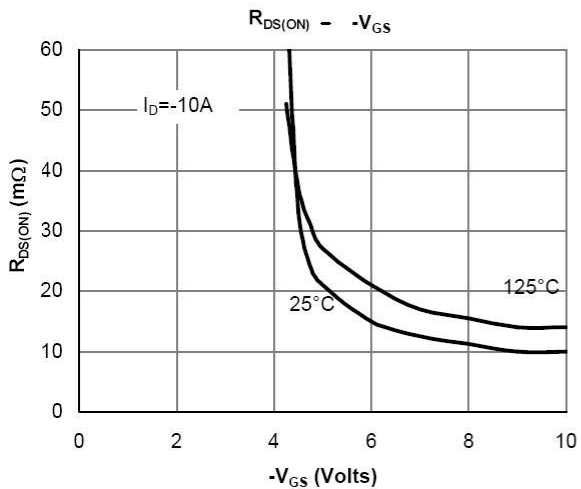
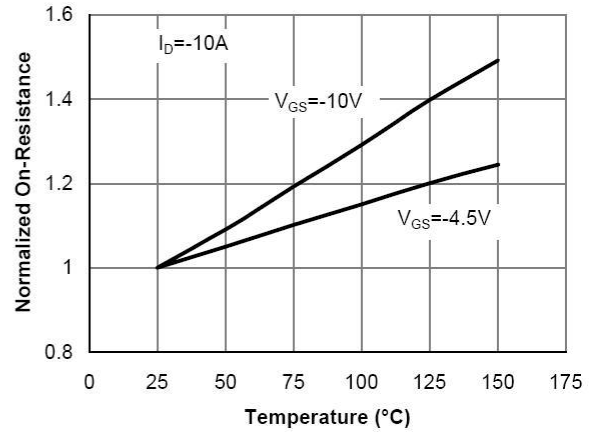
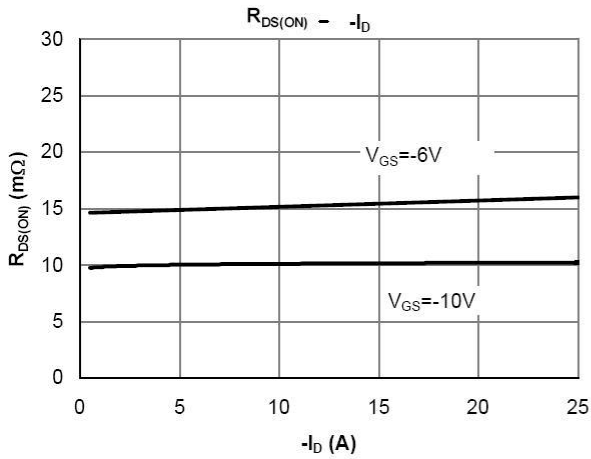
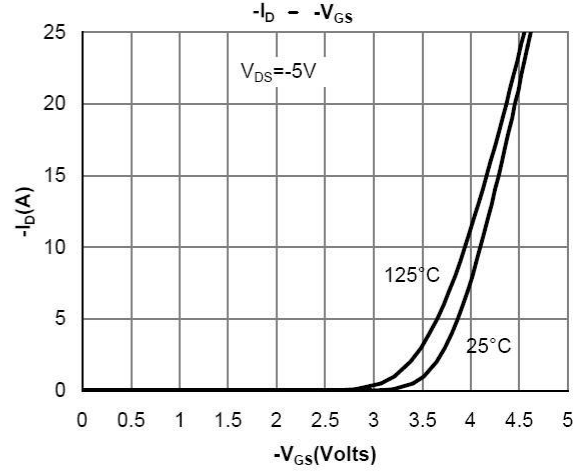
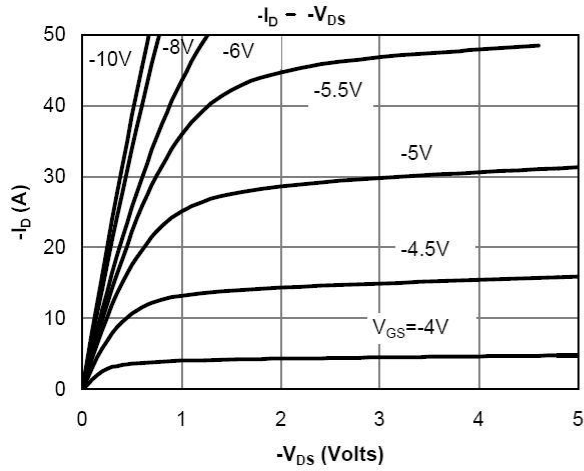
C. The R<sub>θJA</sub> is the sum of the thermal impedance from junction to lead R<sub>θJL</sub> and lead to ambient.

D. The static characteristics in Figures 1 to 6,12,14 are obtained using 80 μs pulses, duty cycle 0.5% max.

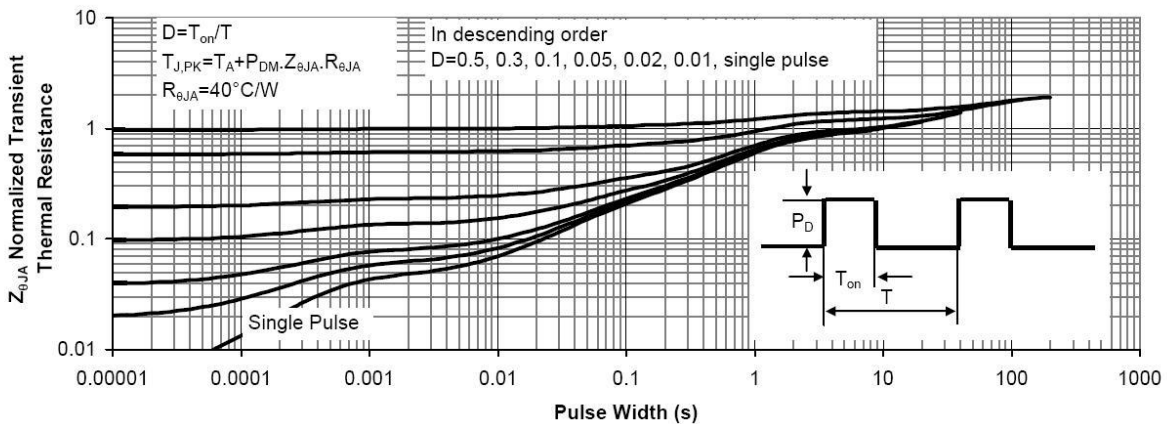
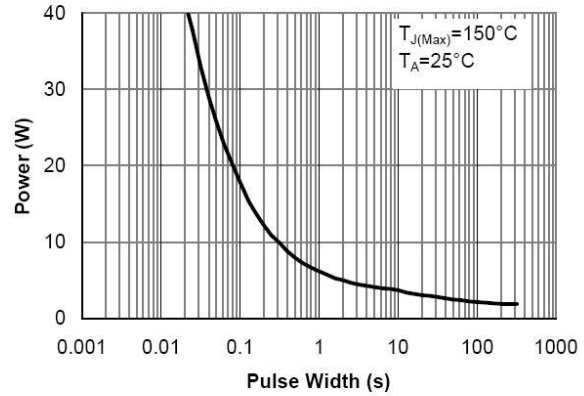
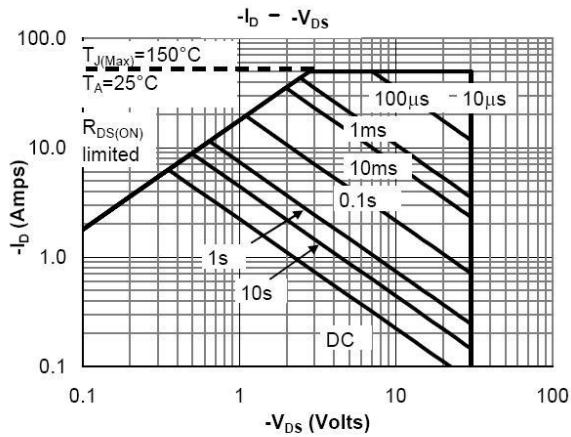
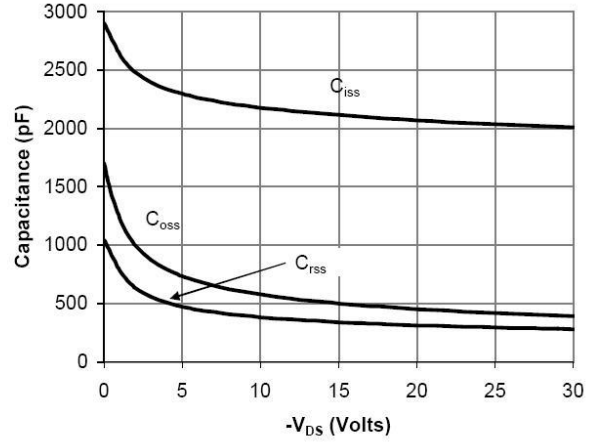
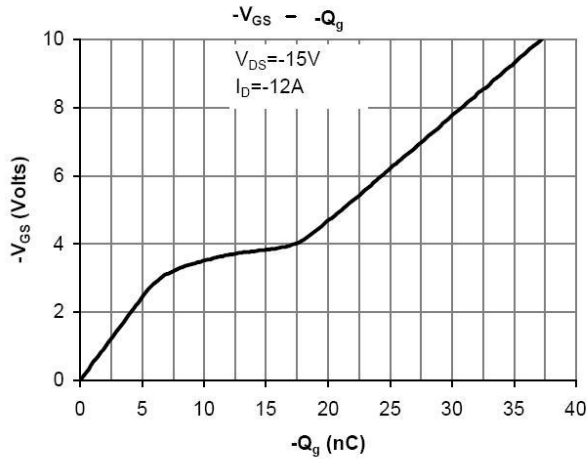
**Electrical Characteristics(Ta=25°C)**

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$BV_{DSS}$	$I_D=-250\mu A$ $V_{GS}=0V$	-30			V
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS}=-24V$ $V_{GS}=0V$			-1.0	$\mu A$
		$V_{DS}=-24V$ $V_{GS}=0V$ $T_J=55^\circ C$			-5.0	
Gate-Body leakage current	$I_{GSS}$	$V_{DS}=0V$ $V_{GS}=\pm 25V$			$\pm 10$ 0	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=-250\mu A$	-1.0	-1.5	-3.0	V
On state drain current	$I_{D(ON)}$	$V_{GS}=-10V$ $V_{DS}=-5V$	60			A
Static Drain-Source On-Resistance	$R_{DS(ON)}$	$V_{GS}=-10V$ $I_D=-10A$		11	14	m $\Omega$
		$V_{GS}=-10V$ $I_D=-10A$ $T_J=125^\circ C$		15	19	
		$V_{GS}=-4.5V$ $I_D=-10A$		24		
Forward Transconductance	$g_{FS}$	$V_{DS}=-5V$ $I_D=-10A$		26		S
Diode Forward Voltage	$V_{SD}$	$I_S=-1A$ $V_{GS}=0V$		-0.72	-1.0	V
Maximum Body-Diode Continuous Current	$I_S$				-4.2	A
Total Gate Charge	$Q_g$	$V_{GS}=-10V$ $V_{DS}=-15V$ $I_D=-12A$		37.2	45	nC
Gate-Source Charge	$Q_{gs}$			7		
Gate-Drain Charge	$Q_{gd}$			10.4		
Gate Resistance	$R_g$	$V_{GS}=0V$ $V_{DS}=0V$ $f=1MHz$		2.0	3.0	$\Omega$
Input Capacitance	$C_{iss}$	$V_{GS}=0V$ $V_{DS}=-15V$ $f=1MHz$		2076	250 0	pF
Output Capacitance	$C_{oss}$			503		
Reverse Transfer Capacitance	$C_{rss}$			302		
Turn-on Delay Time	$t_{d(ON)}$	$V_{GS}=-10V$ $V_{DS}=-15V$ $R_L=1.25\Omega$ $R_{GEN}=3\Omega$		12.4		ns
Turn-on Rise Time	$t_r$			8.2		
Turn-off Delay Time	$t_{d(OFF)}$			25.6		
Turn-off Fall Time	$t_f$			12		
Body Diode Reverse Recovery Time	$t_{rr}$	$I_F=-12A$ $di/dt=100A/\mu s$		33	40	ns
Body Diode Reverse Recovery Charge	$Q_{rr}$	$I_F=-12A$ $di/dt=100A/\mu s$		23		nC

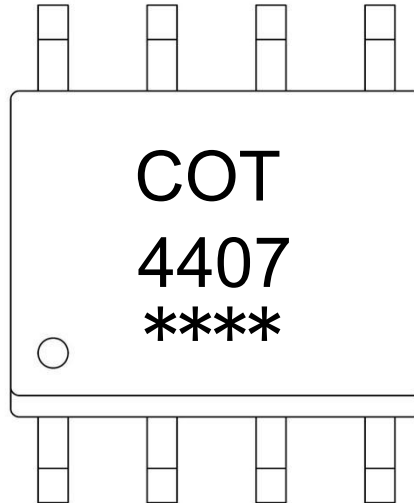
Electrical Characteristic Curve



Electrical Characteristic Curve



Marking Instructions



Note:

COT: Company Logo

4407: Product Type.

\*\*\*\*: Lot No. Code, code change with Lot No.

Packaging SPEC.

REEL INFORMATION

Package Type	Units					Dimension (unit: mm <sup>3</sup> )		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOP-8	4,000	2	8,000	6	48,000	13" x12	360×360×50	380×335×366

Package Outline Dimensions

SOP-8

Unit:mm

