

Descriptions

This 40V,6A N-Channel and P-Channel Complementary Enhancement MOSFET in a SOP-8 Plastic Package.

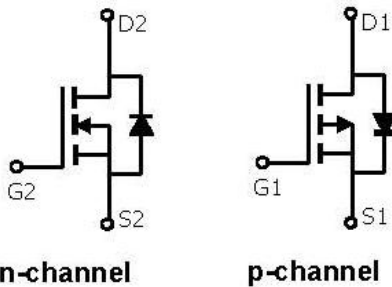
Features

- | | |
|--------------------------|-------------------------|
| ● N-channel | P-channel |
| ● VDS(V)=40V | VDS(V)=-40V |
| ● ID=6A | ID=-5A |
| ● RDS(ON)<31mΩ(VGS=10V) | RDS(ON)<45mΩ(VGS=-10V) |
| ● RDS(ON)<45mΩ(VGS=4.5V) | RDS(ON)<63mΩ(VGS=-4.5V) |

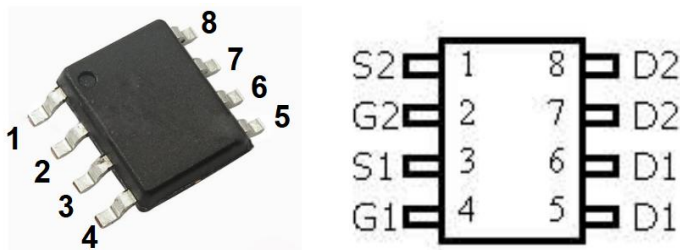
Applications

These devices are well suited for high efficiency switching DC/DC converters and switch mode power supplies. And suitable for use as a load switch or in PWM applications..

Equivalent Circuit



Pinning



Marking

See Marking Instructions.

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating		Unit
			N-channel	P-channel	
Drain-Source Voltage		V_{DSS}	40	-40	V
Gate-Source Voltage		V_{GSS}	±20		V
Continuous Drain Current	$T_A=25^\circ\text{C}$	I_D	6	-5	A
	$T_A=70^\circ\text{C}$	I_D	5	-4	A
Pulsed Drain Current		I_{DM}	20	-20	A
Power Dissipation	$T_A=25^\circ\text{C}$	P_D	2	2	W
	$T_A=70^\circ\text{C}$	P_D	1.28	1.28	W
Maximum Junction-to-Ambient	$t \leq 10\text{s}$	$R_{\theta JA}$	62.5	62.5	$^\circ\text{C}/\text{W}$
	Steady-State	$R_{\theta JA}$	110	110	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Lead	Steady-State	$R_{\theta JL}$	50	50	$^\circ\text{C}/\text{W}$
Junction and Storage Temperature Range		T_J, T_{STG}	-55 to +150		$^\circ\text{C}$

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0V$ $I_D=250\mu A$	40	44		V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=40V$ $V_{GS}=0V$			1.0	μA
		$V_{DS}=40V$ $V_{GS}=0V$ $T_J=55^\circ C$			5.0	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	1.6	3	V
On state drain current	$I_{D(on)}$	$V_{DS}=10V$ $V_{GS}=5.0V$	20			A
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10V$ $I_D=6A$		17.5	31	m Ω
		$V_{GS}=4.5V$ $I_D=5.0A$		22.8	45	m Ω
Forward Transconductance	g_{FS}	$V_{DS}=5.0V$ $I_D=6.0A$		14		S
Diode Forward Voltage	V_{SD}	$V_{GS}=0V$ $I_S=1.0A$		0.73	1.0	V
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		1200		pF
Output Capacitance	C_{oss}			310		pF
Reverse Transfer Capacitance	C_{rss}			65		pF
Gate resistance	R_g	$V_{DS}=0V$ $V_{GS}=0V$ $f=1.0MHz$		9.5		Ω
Total Gate Charge(10V)	Q_g	$V_{GS}=10V$ $V_{DS}=20V$ $I_D=6A$		8.3		nC
Total Gate Charge(4.5V)				4.2		nC
Gate-Source Charge	Q_{gs}			1.3		nC
Gate-Drain Charge	Q_{gd}			2.3		nC
Turn-On Delay Time	$t_{d(on)}$		$V_{DS}=20V$ $V_{GS}=10V$ $R_L=3.3\Omega$ $R_{GEN}=3\Omega$		4.2	
Turn-On Rise Time	t_r			3.3		ns
Turn-Off Delay Time	$t_{d(off)}$			15.6		ns
Turn-Off Fall Time	t_f			3		ns

Electrical Characteristic Curve

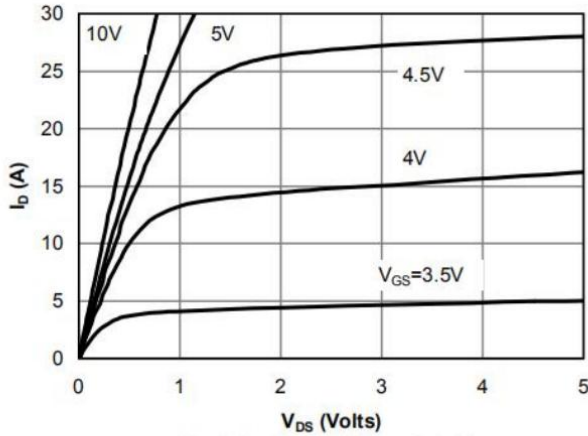


Fig 1: On-Region Characteristics

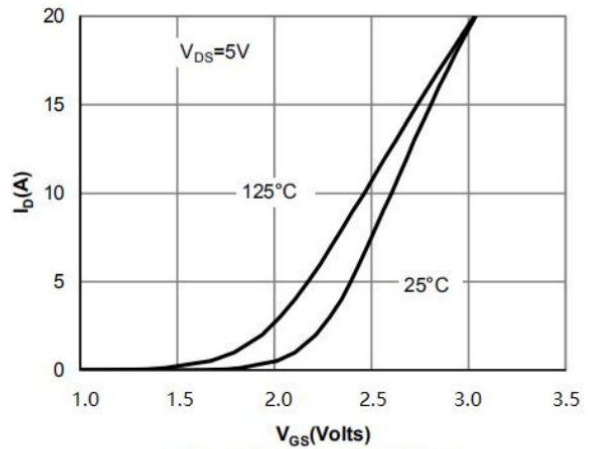


Figure 2: Transfer Characteristics

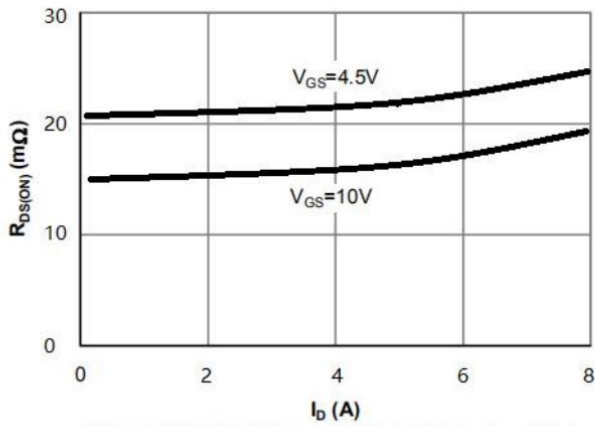


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

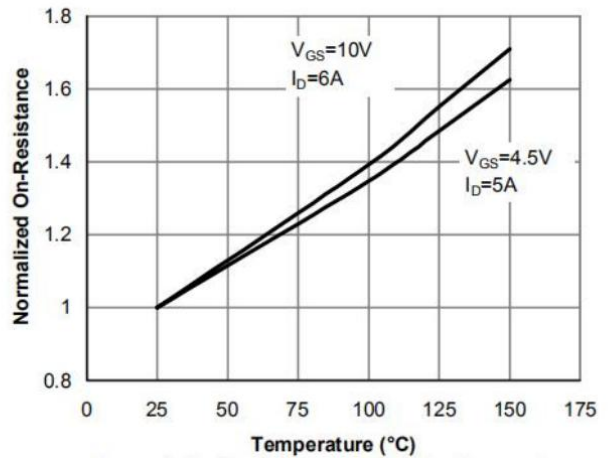


Figure 4: On-Resistance vs. Junction Temperature

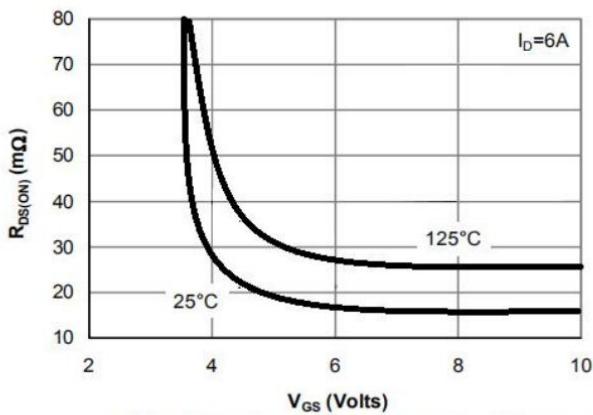


Figure 5: On-Resistance vs. Gate-Source Voltage

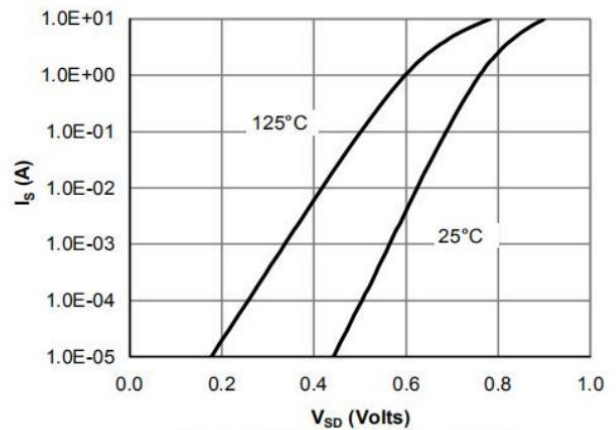


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

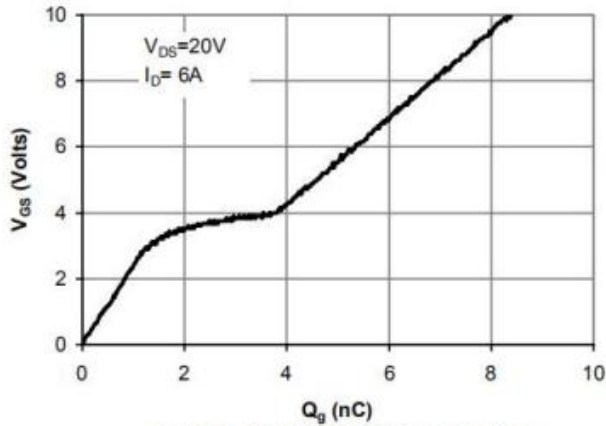


Figure 7: Gate-Charge Characteristics

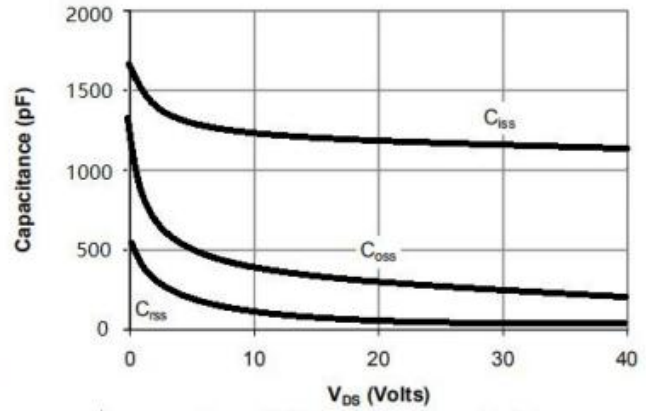


Figure 8: Capacitance Characteristics

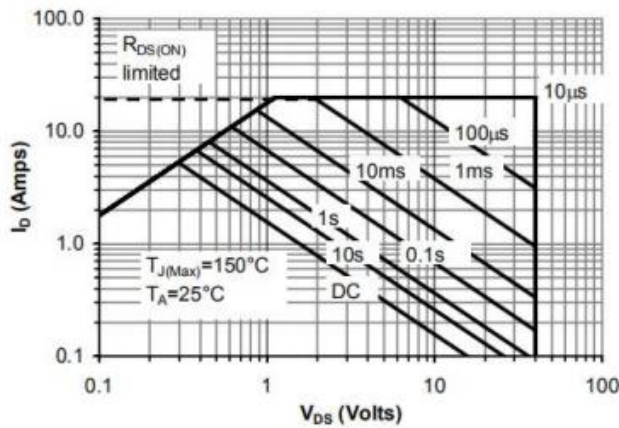


Figure 9: Maximum Forward Biased Safe Operating Area

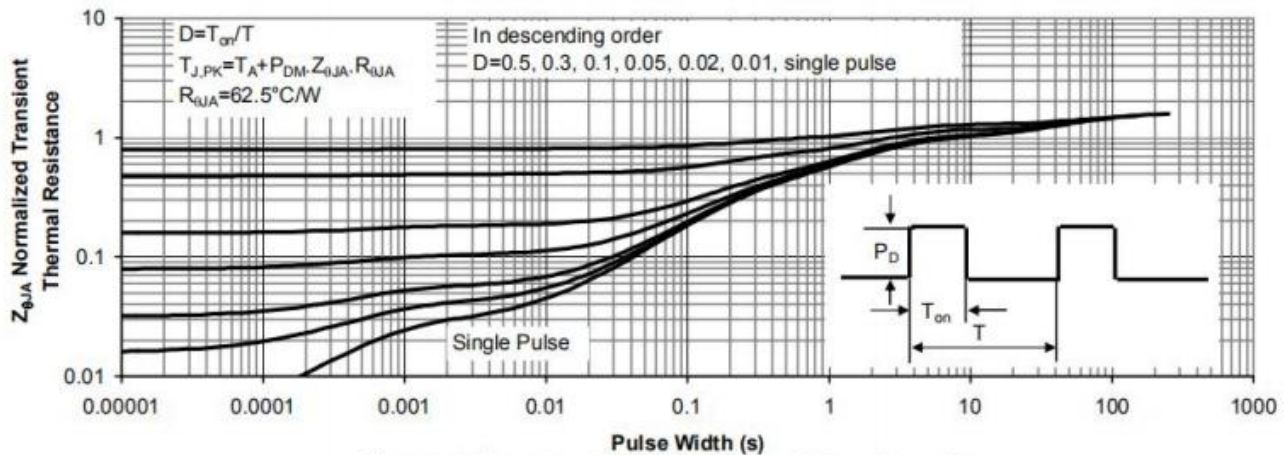
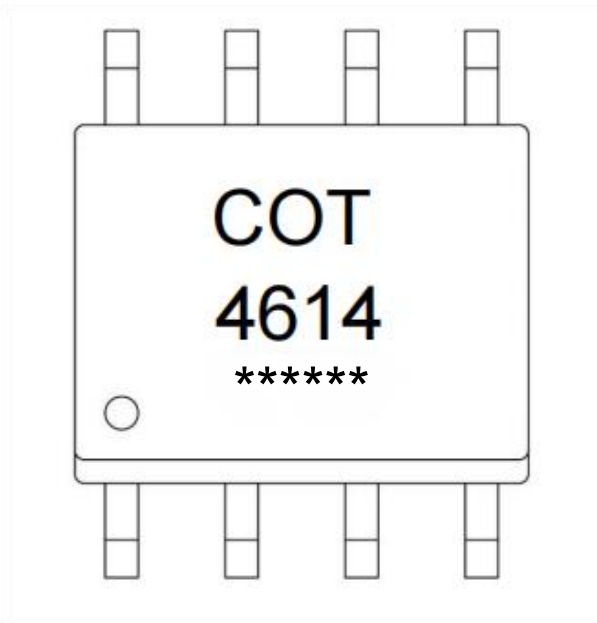


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



- Note:
- COT: Company Logo
 - 4614: Product Type.
 - *****: Lot No. Code, code change with Lot No.

Packaging SPEC

REEL INFORMATION

Package Type	Units					Dimension (unit: mm ³)		
	Units/Reel	Reels/Inner Box	Units/Inner Box	Inner Boxes/Outer Box	Units/Outer Box	Reel	Inner Box	Outer Box
SOP/ESOP-8	4,000	2	8,000	6	48,000	13" ×12	360×360×50	380×335×366

Package Outline Dimensions

SOP-8

Unit:mm

