

Descriptions

This 30A,30V N-Channel MOSFET in a SOP-8 Plastic Package.

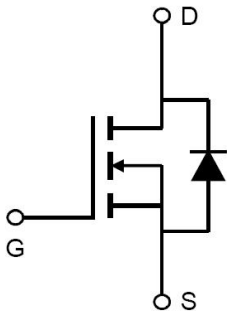
Features

- Low $R_{DS(ON)}$
- Low Gate Charge
- Optimized for fast-switching
- RoHS and Halogen-Free Compliant

Applications

Synchronous Rectification in DC/DC and AC/DC Converters, Isolated DC/DC Converters in Telecom and Industrial.

Equivalent Circuit



Pinning



PIN1、PIN 2、PIN 3: Source PIN 4: Gate

PIN5、PIN 6、PIN 7、PIN 8: Drain

Absolute Maximum Ratings(Ta=25°C)

Parameter		Symbol	Rating	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_A=25^\circ\text{C}$	I_D	30	A
Pulsed Drain Current ^①		I_{DM}	65	A
Avalanche Current		I_{AS}	30	A
Avalanche energy		E_{AS}	70	mJ
Power Dissipation	$T_C=25^\circ\text{C}$	P_D	4	W
	$T_A=25^\circ\text{C}$		0.75	W
Thermal resistance, junction - ambient		$R_{\theta JA}$	170	$^\circ\text{C}/\text{W}$
Thermal resistance, junction - case		$R_{\theta JC}$	32	$^\circ\text{C}/\text{W}$
Soldering temperature, wave soldering for 10s		T_{sold}	265	$^\circ\text{C}$
Operating and Junction Temperature Range		T_j T_{stg}	-55~+150	$^\circ\text{C}$

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$V_{GS}=0\text{V}$ $I_D=250\mu\text{A}$	30			V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS}=30\text{V}$ $V_{GS}=0\text{V}$			1.0	μA
Gate-Body Leakage Current Forward	I_{GSS}	$V_{GS}=\pm 20\text{V}$ $V_{DS}=0\text{V}$			± 100	nA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS}=V_{GS}$ $I_D=250\mu\text{A}$	1.2	1.8	2.5	V
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS}=10\text{V}$ $I_D=20\text{A}$		4.3	5.5	m Ω
		$V_{GS}=4.5\text{V}$ $I_D=12\text{A}$		5.5	7	
Forward Transconductance	g_{FS}	$V_{DS}=25\text{V}$ $I_D=10\text{A}$		30		S
Diode Forward Voltage	V_{SD}	$I_S=3\text{A}$ $V_{GS}=0\text{V}$		0.7	1.2	V

Electrical Characteristics(Ta=25°C)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	C_{iss}	$V_{DS}=25V$ $V_{GS}=0V$ $f=1.0MHz$		4000		pF
Output Capacitance	C_{oss}			420		
Reverse Transfer Capacitance	C_{rss}			280		
Gate resistance	R_g	$f=1.0MHz$		0.55		Ω
Total Gate Charge(10V)	$Q_{g(10V)}$	$V_{GS}=10V$ $I_D=20A$ $V_{DS}=15V$		36	49	nC
Total Gate Charge(4.5V)	$Q_{g(4.5V)}$			17	23	
Gate-Source Charge	Q_{gs}			6		
Gate-Drain Charge	Q_{gd}			8		
Turn-On Delay Time	$t_{d(on)}$	$V_{GS}=10V$ $V_{DS}=15V$ $R_L=0.75\Omega$ $R_{GEN}=3.0\Omega$		7.5		ns
Turn-On Rise Time	t_r			4.0		
Turn-Off Delay Time	$t_{d(off)}$			37.0		
Turn-Off Fall Time	t_f			7.5		
Body Diode Reverse Recovery Time	t_{rr}	$I_F=20A$ $di/dt=500A/\mu s$		14		ns
Body Diode Reverse Recovery Charge	Q_{rr}			20.3		nC

Note: ① Pulse Test : Pulse width $\leq 300\mu s$, Duty cycle $\leq 2\%$;

Electrical Characteristic Curve

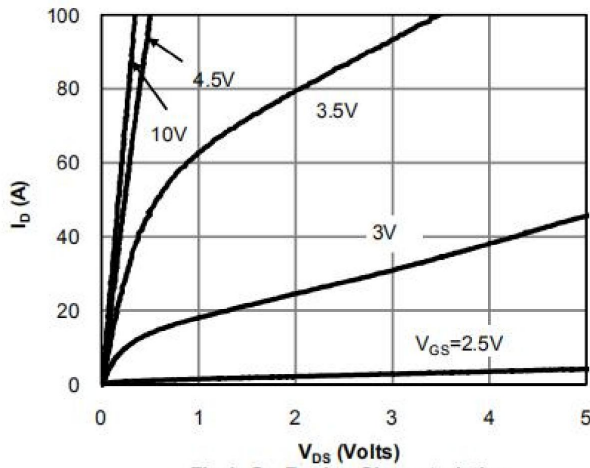


Fig 1: On-Region Characteristics

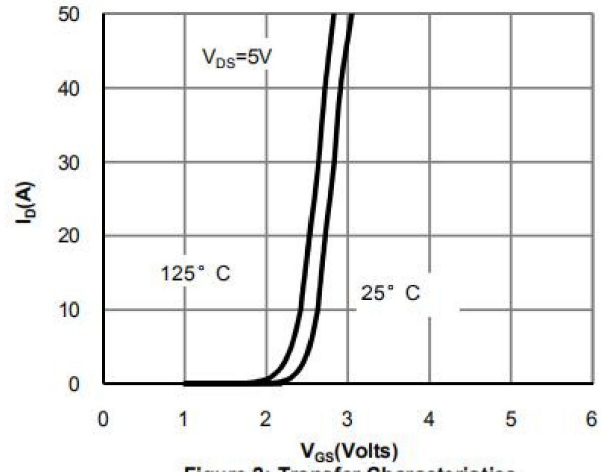


Figure 2: Transfer Characteristics

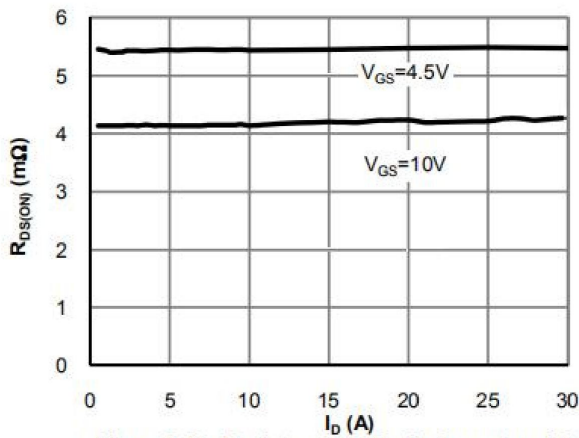


Figure 3: On-Resistance vs. Drain Current and Gate Voltage

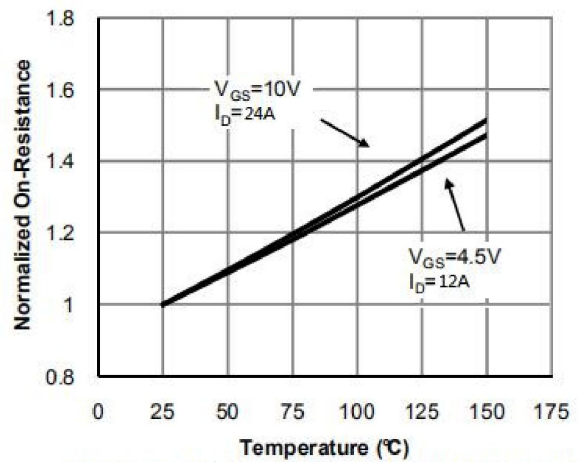


Figure 4: On-Resistance vs. Junction Temperature

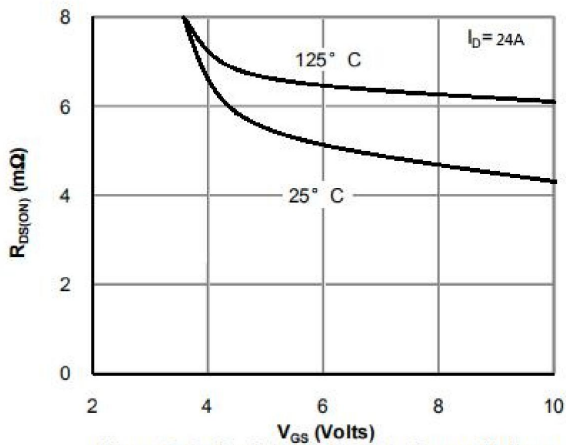


Figure 5: On-Resistance vs. Gate-Source Voltage

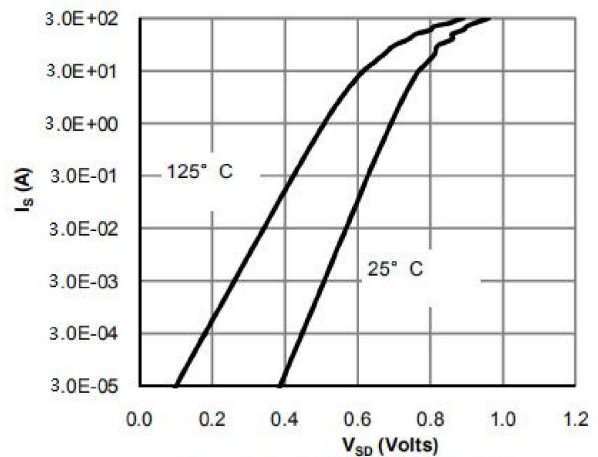


Figure 6: Body-Diode Characteristics

Electrical Characteristic Curve

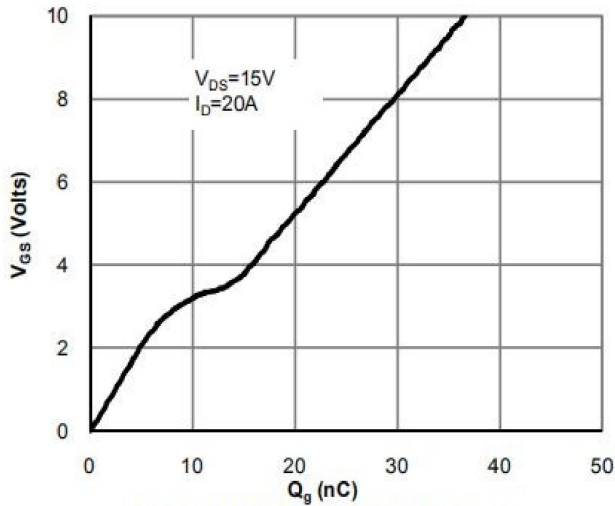


Figure 7: Gate-Charge Characteristics

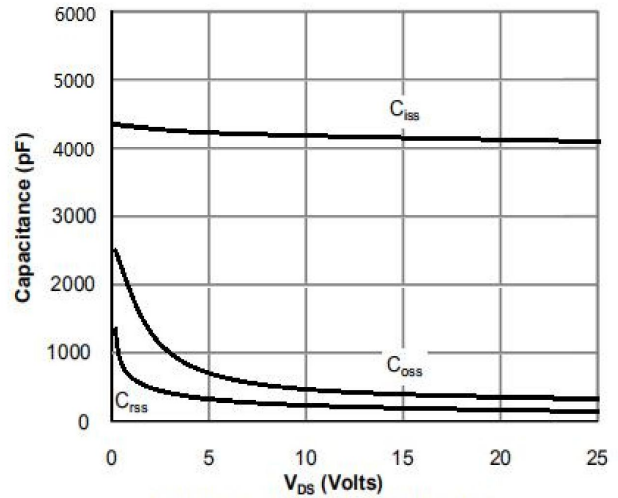


Figure 8: Capacitance Characteristics

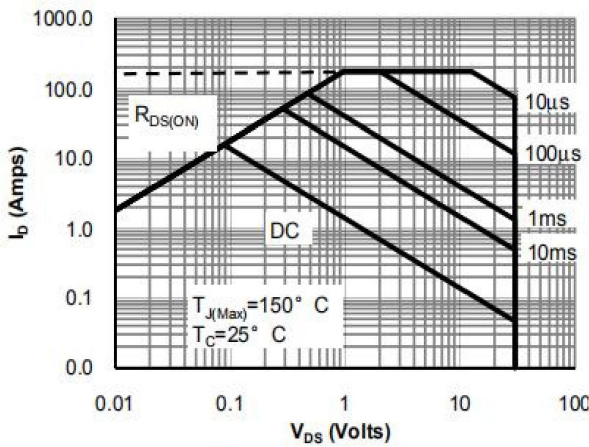


Figure 9: Maximum Forward Biased Safe Operating Area

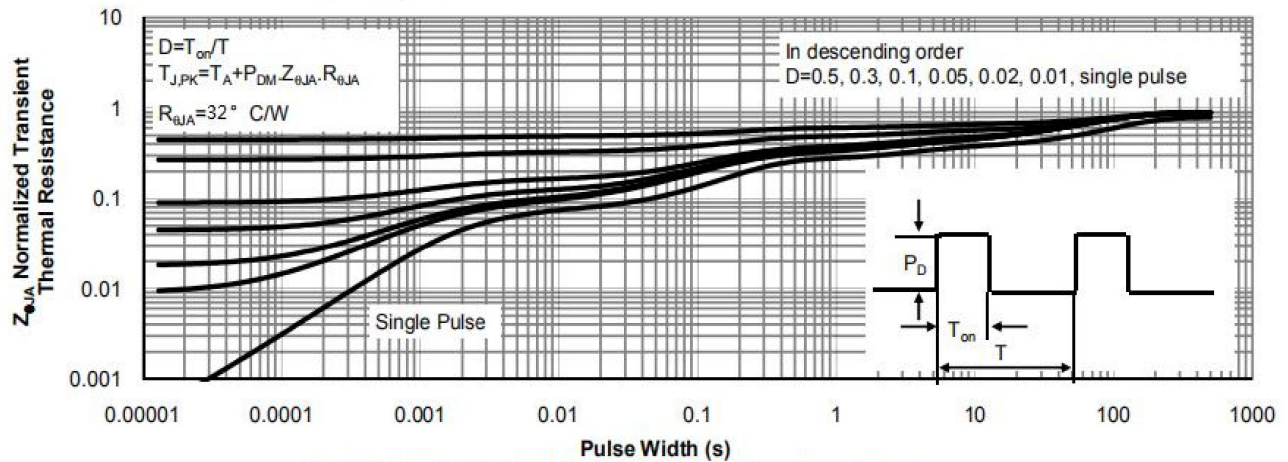
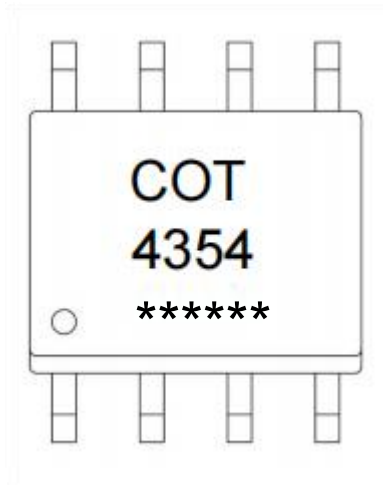


Figure 10: Normalized Maximum Transient Thermal Impedance

Marking Instructions



Note:

- COT: Company Logo
- 4354: 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-8	4,000	2	8,000	6	48,000	13" x12	360×360×50	380×335×366

Package Outline Dimensions

SOP-8

Unit:mm

