30V N-Channel Enhancement Mode MOSFET

V_{DS}= 30V

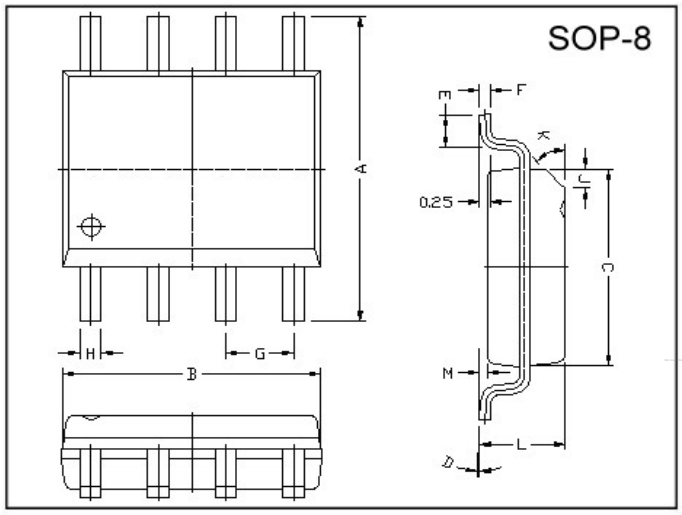
$R_{DS(ON)}$, V_{gs}@10V, I_{ds}@12A = 10.5mΩ

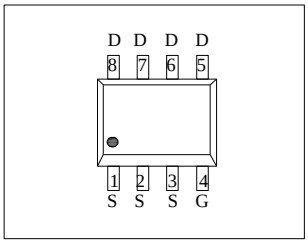
$R_{DS(ON)}$, V_{gs}@4.5V, I_{ds}@12A = 15mΩ

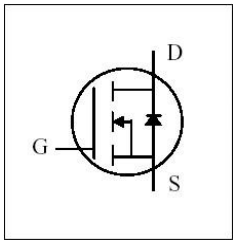
Features

Advanced trench process technology
High Density Cell Design For Ultra Low On-Resistance
Fully Characterized Avalanche Voltage and Current
Improved Shoot-Through FOM

Package Dimensions







REF.	Millimeter Min.	Millimeter Max.	REF.	Millimeter Min.	Millimeter Max.
A	5.80	6.20	M	0.10	0.25
B	4.80	5.00	H	0.35	0.49
C	3.80	4.00	L	1.35	1.75
D	0°	8°	J	0.375 REF.	
E	0.40	0.90	K	45°	
F	0.19	0.25	G	1.27 TYP.	

Maximum Ratings and Thermal Characteristics (TA = 25oC unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current		I_D	12	A
Pulsed Drain Current		I_{DM}	48	
Maximum Power Dissipation	TA = 25°C	P_D	2.5	W
	TA = 75°C		1.2	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150	°C
Avalanche Energy with Single Pulse		EAS	150	mJ
Junction-to-Case Thermal Resistance		$R_{\theta JC}$	25	°C/W
Junction-to-Ambient Thermal Resistance (PCB mounted)		$R_{\theta JA}$	50	

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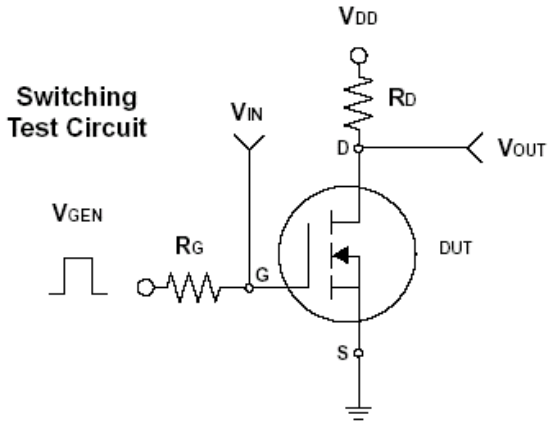
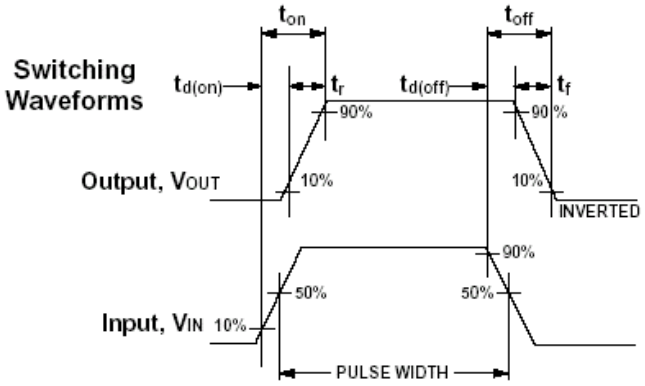
ELECTRICAL CHARACTERISTICS

Parameter	Symbol	Test Condition	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} = 0V, I_D = 250uA	30			V
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 4.5V, I_D = 12A		11.0	15.0	mΩ
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 12A		8.5	10.5	
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} =V_{GS}, I_D = 250uA	1	1.8	3	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 24V, V_{GS} = 0V			1	uA
Gate Body Leakage	I_{GSS}	V_{GS} = ± 20V, V_{DS} = 0V			±100	nA
Forward Transconductance	g_{fs}	V_{DS} = 15V, I_D = 12A		64	__	S
Dynamic						
Total Gate Charge	Q_g	V_{DS} = 15V, I_D = 12A V_{GS} = 5V		12	45	nC
Gate-Source Charge	Q_{gs}			4.5		
Gate-Drain Charge	Q_{gd}			3.6		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = 15V, R_G = 6Ω I_D = 1A, V_{GS} = 10V		22	35	ns
Turn-On Rise Time	t_r			13	20	
Turn-Off Delay Time	$t_{d(off)}$			82	125	
Turn-Off Fall Time	t_f			30	45	
Input Capacitance	C_{iss}	V_{DS} = 15V, V_{GS} = 0V f = 1.0 MHz		1180		pF
Output Capacitance	C_{oss}			270		
Reverse Transfer Capacitance	C_{rss}			145		
Source-Drain Diode						
Max. Diode Forward Current	I_S				2.0	A
Diode Forward Voltage	V_{SD}	I_S = 2A, V_{GS} = 0V			1.5	V

Note: Pulse test: pulse width <= 300us, duty cycle<= 2%





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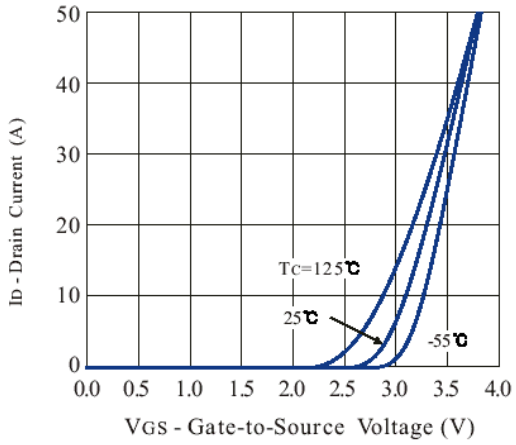
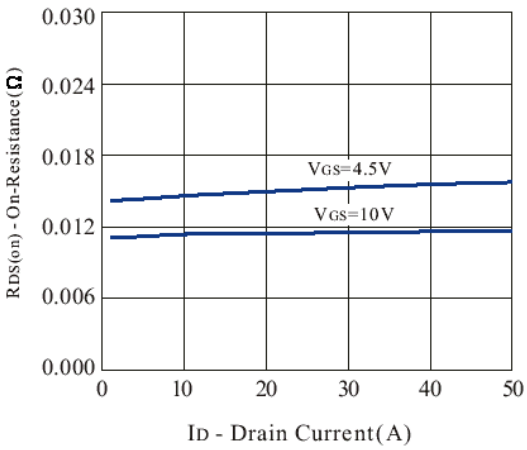
Typical Characteristics (T_J =25℃ Noted)

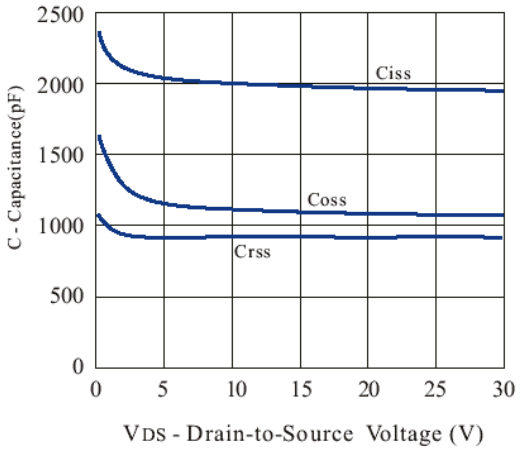
Transfer Characteristics



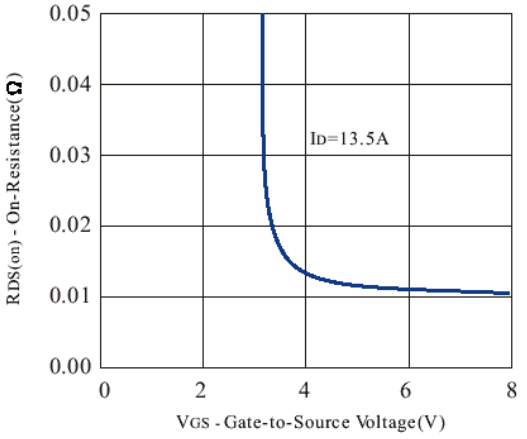
On- Resistance vs. Drain Current



Capacitance



On- Resistance vs. Gate-to-Source Voltage



Threshold Voltage