



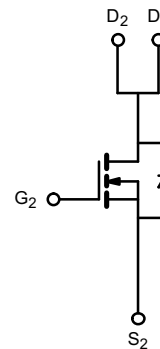
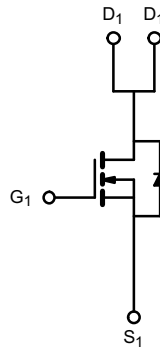
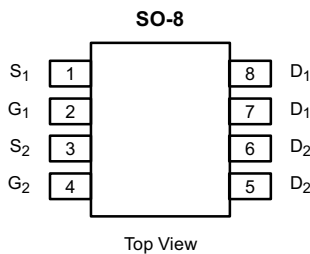
Si9945AEY

Siliconix

Dual N-Channel 60-V (D-S), 175°C MOSFET
New Product

175°C Rated
Maximum Junction Temperature
TrenchFET®
Power MOSFETs

PRODUCT SUMMARY		
V _{DS} (V)	R _{DS(ON)} (Ω)	I _D (A)
60	0.080 @ V _{GS} = 10 V	±3.7
	0.100 @ V _{GS} = 4.5 V	±3.4



ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)			
PARAMETER	SYMBOL	LIMIT	UNIT
Drain-Source Voltage	V _{DS}	60	V
Gate-Source Voltage	V _{GS}	±20	
Continuous Drain Current (T _J = 175°C) ^A	I _D	T _A = 25°C	±3.7
		T _A = 70°C	±3.2
Pulsed Drain Current	I _{DM}	25	A
Continuous Source Current (Diode Conduction) ^A	I _S	2	
Maximum Power Dissipation ^A	P _D	T _A = 25°C	2.4
		T _A = 70°C	1.7
Operating Junction and Storage Temperature Range	T _J , T _{stg}	-55 to 175	°C

THERMAL RESISTANCE RATINGS				
PARAMETER	SYMBOL	TYP	MAX	UNIT
Junction-to-Ambient ^A	R _{thJA}	t ≤ 10 sec	62.5	°C/W
		Steady State	93	

Notes

A. Surface Mounted on 1" x 1" FR4 Board

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70758.



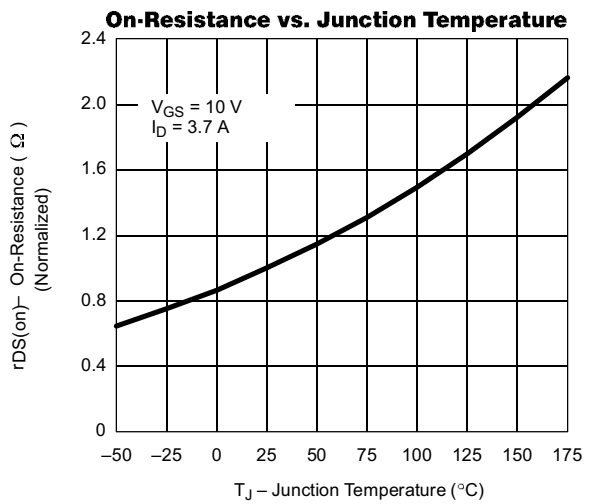
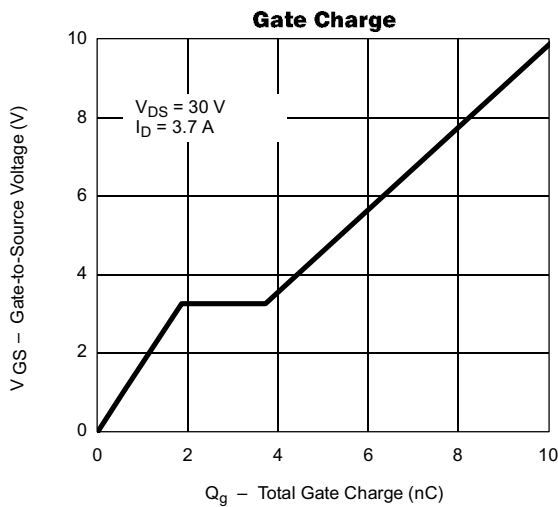
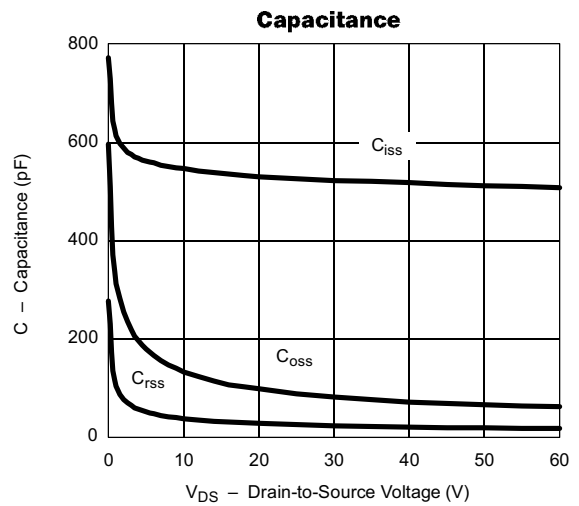
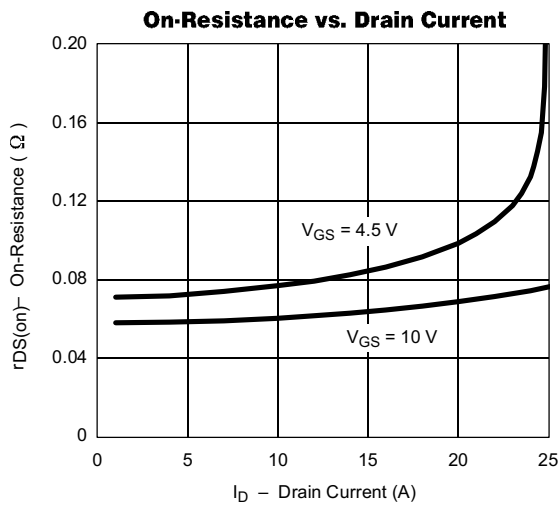
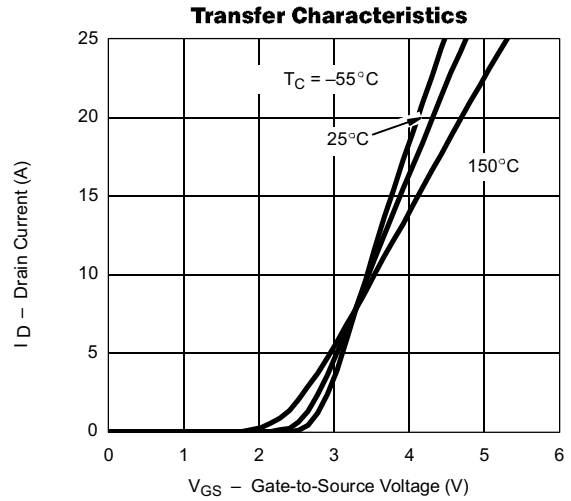
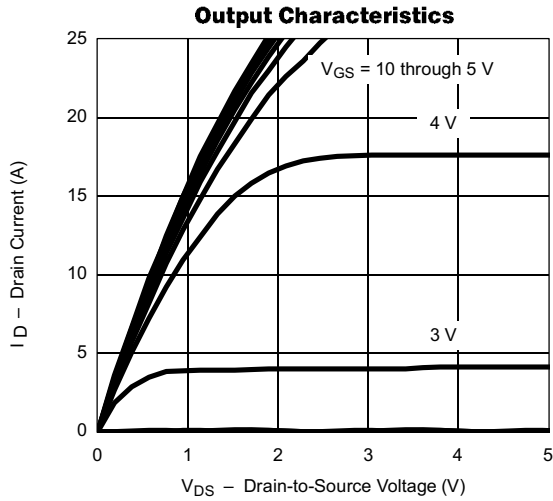
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)						
PARAMETER	SYMBOL	TEST CONDITION	MIN	TYP	MAX	UNIT
STATIC						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$	1.0			V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0 \text{ V}, V_{GS} = \pm 20 \text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}$			1	μA
		$V_{DS} = 60 \text{ V}, V_{GS} = 0 \text{ V}, T_J = 55^\circ\text{C}$			10	
On-State Drain Current ^B	$I_{D(on)}$	$V_{DS} \geq 5 \text{ V}, V_{GS} = 10 \text{ V}$	20			A
Drain-Source On-State Resistance ^B	$r_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = 3.7 \text{ A}$		0.06	0.080	Ω
		$V_{GS} = 4.5 \text{ V}, I_D = 3.4 \text{ A}$		0.075	0.100	
Forward Transconductance ^B	g_{fs}	$V_{DS} = 15 \text{ V}, I_D = 3.7 \text{ A}$		11		S
Diode Forward Voltage ^B	V_{SD}	$I_S = 2.0 \text{ A}, V_{GS} = 0 \text{ V}$			1.2	V
DYNAMIC^A						
Total Gate Charge	Q_g	$V_{DS} = 30 \text{ V}, V_{GS} = 10 \text{ V}, I_D = 3.7 \text{ A}$		11	20	nC
Gate-Source Charge	Q_{gs}			2		
Gate-Drain Charge	Q_{gd}			2		
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 30 \text{ V}, R_L = 30 \Omega$ $I_D \cong 1 \text{ A}, V_{GEN} = 10 \text{ V}, R_G = 6 \Omega$		9	20	ns
Rise Time	t_r			10	20	
Turn-Off Delay Time	$t_{d(off)}$			21	40	
Fall Time	t_f			8	20	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = 2.0 \text{ A}, di/dt = 100 \text{ A}/\mu\text{s}$		45	80	

Notes

- A. Guaranteed by design, not subject to production testing.
 B. Pulse test; pulse width $\leq 300 \mu\text{s}$, duty cycle $\leq 2\%$.



TYPICAL CHARACTERISTICS (25°C UNLESS OTHERWISE NOTED)





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