

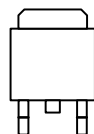
N-Channel Enhancement-Mode MOSFETs, Logic Level

Product Summary

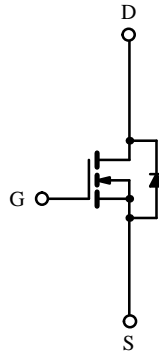
$V_{(BR)DSS}$ (V)	$r_{DS(on)}$ (Ω)	I_D (A) ^a
30	0.01 @ $V_{GS} = 10$ V	60

175°C Rated
Maximum Junction Temperature

TO-263



G D S
Top View



N-Channel MOSFET

Absolute Maximum Ratings ($T_C = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 175^\circ\text{C}$)	I_D	$T_C = 25^\circ\text{C}$	A
		$T_C = 100^\circ\text{C}$	
Pulsed Drain Current	I_{DM}	240	
Continuous Source Current (Diode Conduction)	I_S	60	
Avalanche Current ^b	I_{AR}	60	
Repetitive Avalanche Energy ^b	E_{AS}	L = 0.1 mH	mJ
		L = 0.05 mH	
Maximum Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	W
		$T_C = 100^\circ\text{C}$	
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 175	$^\circ\text{C}$
Lead Temperature ($1/16''$ from case for 10 sec.)	T_L	300	

Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient	R_{thJA}	80	$^\circ\text{C}/\text{W}$
Maximum Junction-to-Case	R_{thJC}	1.2	

Notes:

- a. Package Limited
- b. Duty Cycle $\leq 1\%$

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1408.

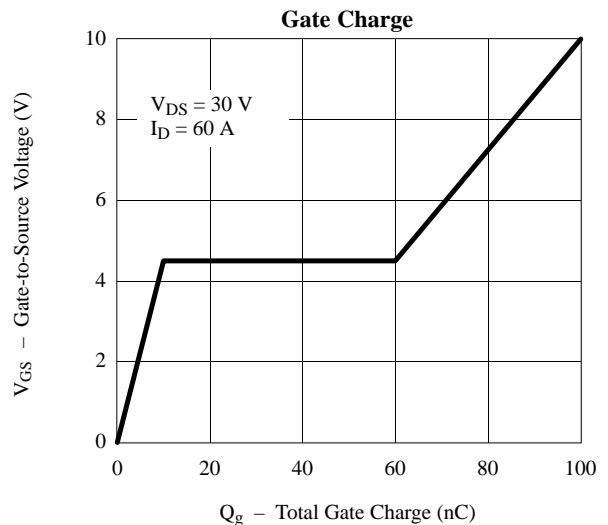
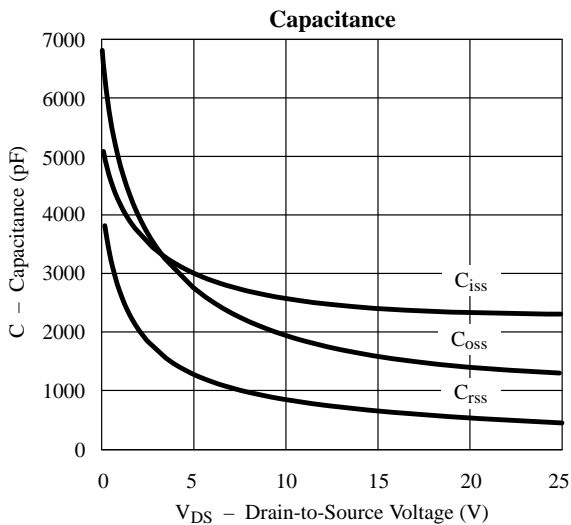
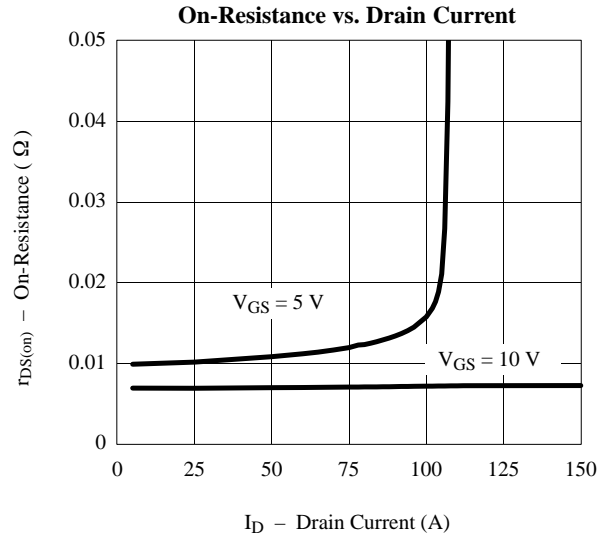
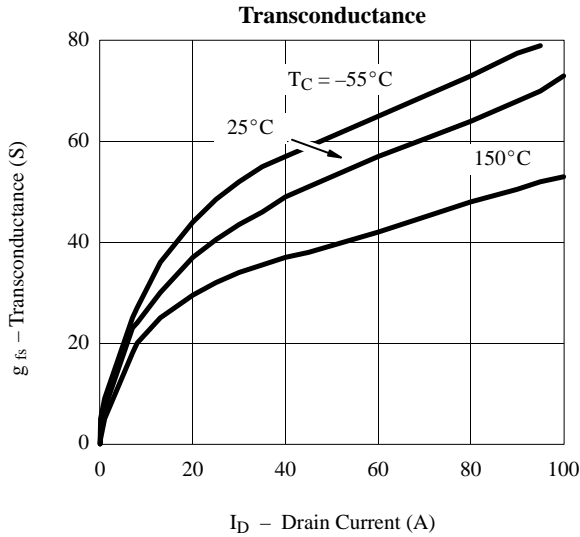
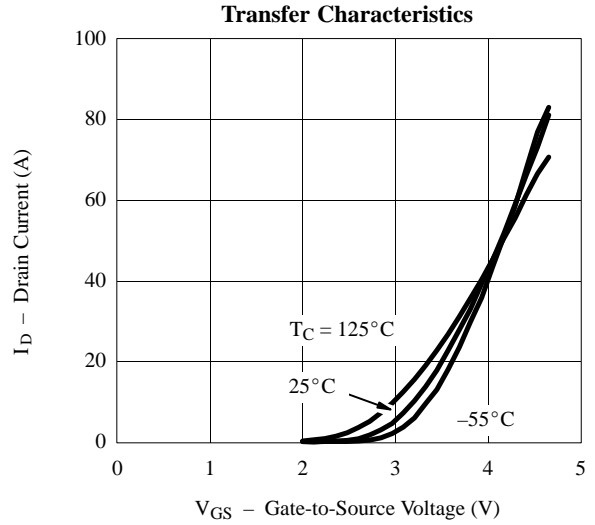
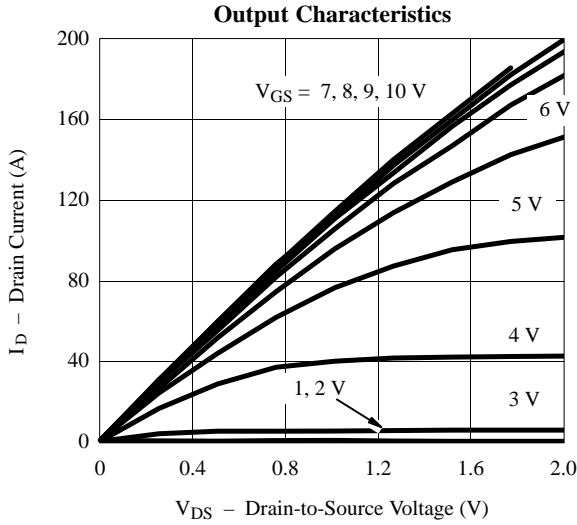
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = 250\ \mu\text{A}$	30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 1\text{ mA}$	0.8		3.0	
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			± 500	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}$			25	μA
		$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$			250	
		$V_{DS} = 30\text{ V}, V_{GS} = 0\text{ V}, T_J = 175^\circ\text{C}$			500	
On-State Drain Current ^b	$I_{D(on)}$	$V_{DS} = 10\text{ V}, V_{GS} = 10\text{ V}$	60			A
Drain-Source On-State Resistance ^b	$r_{DS(on)}$	$V_{GS} = 10\text{ V}, I_D = 30\text{ A}$		0.007	0.01	Ω
		$V_{GS} = 10\text{ V}, I_D = 30\text{ A}, T_J = 125^\circ\text{C}$		0.009	0.016	
		$V_{GS} = 10\text{ V}, I_D = 30\text{ A}, T_J = 175^\circ\text{C}$			0.020	
		$V_{GS} = 5\text{ V}, I_D = 30\text{ A}$		0.010	0.015	
Forward Transconductance ^b	g_{fs}	$V_{DS} = 15\text{ V}, I_D = 30\text{ A}$		44		S
Dynamic						
Input Capacitance	C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		2600		pF
Output Capacitance	C_{oss}			1500		
Reverse Transfer Capacitance	C_{rss}			750		
Total Gate Charge ^c	Q_g	$V_{DS} = 15\text{ V}, V_{GS} = 10\text{ V}, I_D = 60\text{ A}$		100	120	nC
Gate-Source Charge ^c	Q_{gs}			10	15	
Gate-Drain Charge ^c	Q_{gd}			45	75	
Turn-On Delay Time ^c	$t_{d(on)}$	$V_{DD} = 30\text{ V}, R_L = 1\ \Omega$ $I_D \cong 30\text{ A}, V_{GEN} = 10\text{ V}, R_G = 2.5\ \Omega$		14	30	ns
Rise Time ^c	t_r			25	50	
Turn-Off Delay Time ^c	$t_{d(off)}$			65	100	
Fall Time ^c	t_f			45	80	
Source-Drain Diode Ratings and Characteristics ($T_C = 25^\circ\text{C}$)^b						
Pulsed Current	I_{SM}				240	A
Diode Forward Voltage	V_{SD}	$I_S = I_F = 60\text{ A}, V_{GS} = 0\text{ V}$			1.6	V
Reverse Recovery Time	t_{rr}	$I_F = 60\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		160		ns
Peak Reverse Recovery Current	$I_{RM(REC)}$			13		A
Reverse Recovery Charge	Q_{rr}			1.0		μC

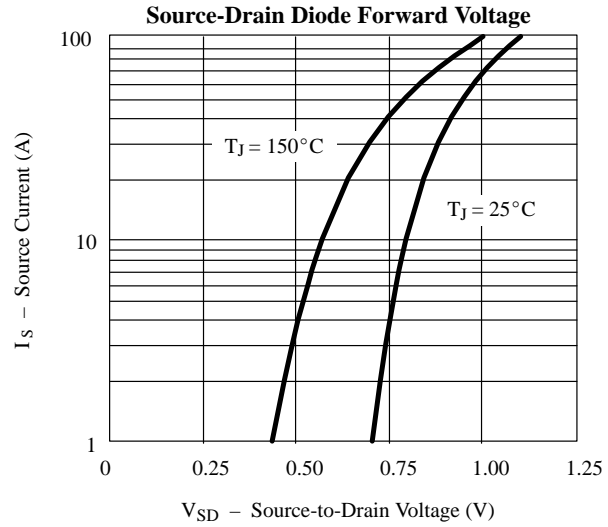
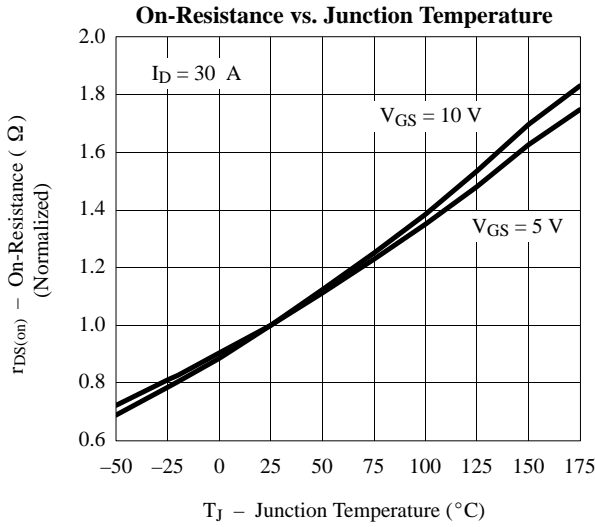
Notes:

- For design aid only; not subject to production testing.
- Pulse test; pulse width $\leq 300\ \mu\text{s}$, duty cycle $\leq 2\%$.
- Independent of operating temperature.

Typical Characteristics (25°C Unless Otherwise Noted)



Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

