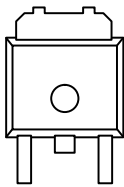


N-Channel Enhancement-Mode Transistors, Logic Level

Product Summary

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D^a (A)
30	0.030	30

TO-252



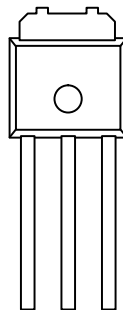
G D S

Top View

Order Number:
SMD30N03-30L

Drain Connected to Tab

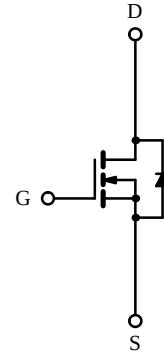
TO-251



G D S

Top View

Order Number:
SMU30N03-30L



N-Channel MOSFET

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

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	30	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 150^\circ\text{C}$) ^b	I_D	$T_A = 25^\circ\text{C}$	6.0
		$T_A = 100^\circ\text{C}$	3.8
Pulsed Drain Current	I_{DM}	30	A
Continuous Source Current (Diode Conduction)	I_S	6	
Avalanche Current	I_{AR}	30	
Repetitive Avalanche Energy (Duty Cycle $\leq 1\%$)	E_{AR}	45	mJ
Maximum Power Dissipation	P_D	$T_C = 25^\circ\text{C}$	50
		$T_A = 25^\circ\text{C}$	2^b
Operating Junction and Storage Temperature Range	T_J, T_{stg}	-55 to 150	$^\circ\text{C}$

Thermal Resistance Ratings

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^b	R_{thJA}		60	$^\circ\text{C/W}$
Maximum Junction-to-Case	R_{thJC}		2.5	
Case-to-Sink	R_{thCS}	1.0		

Notes:

- Calculated Rating for $T_C = 25^\circ\text{C}$, for comparison purposes only. This cannot be used as continuous rating (see Absolute Maximum Ratings and Typical Characteristics).
- Surface mounted on PC board or mounted vertically in free air.

Subsequent updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1412.

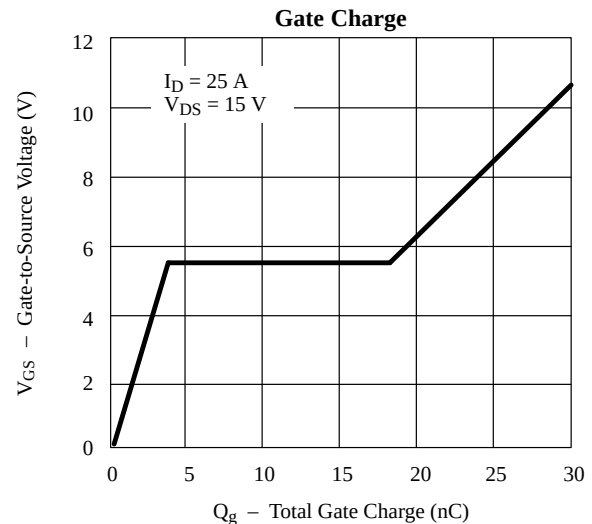
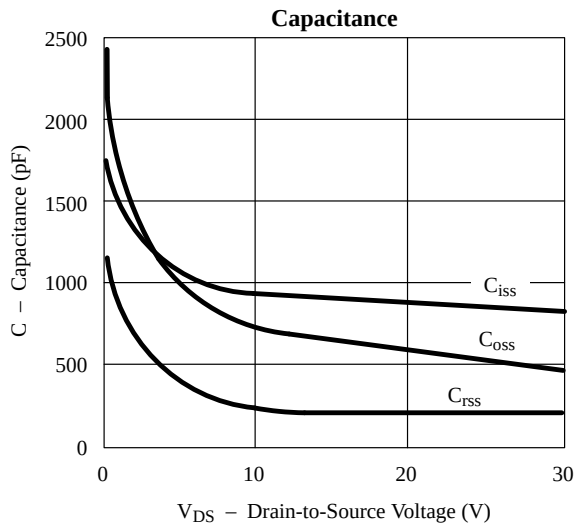
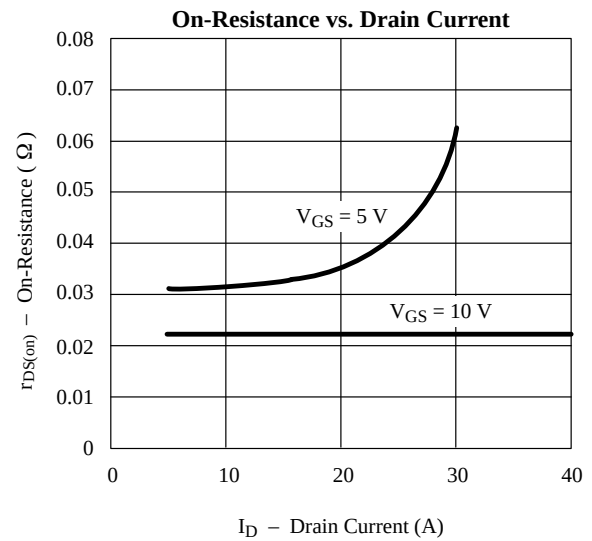
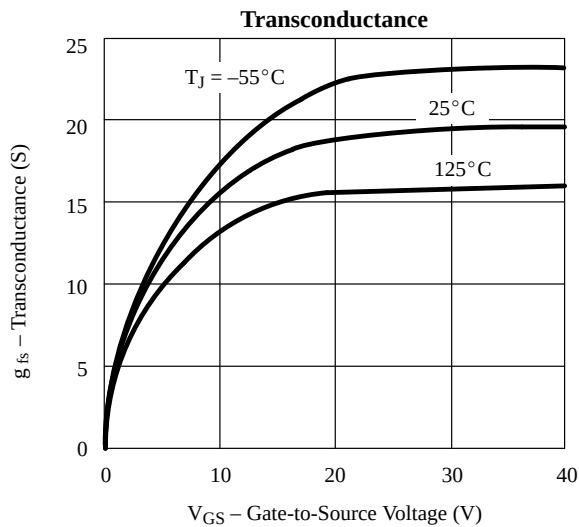
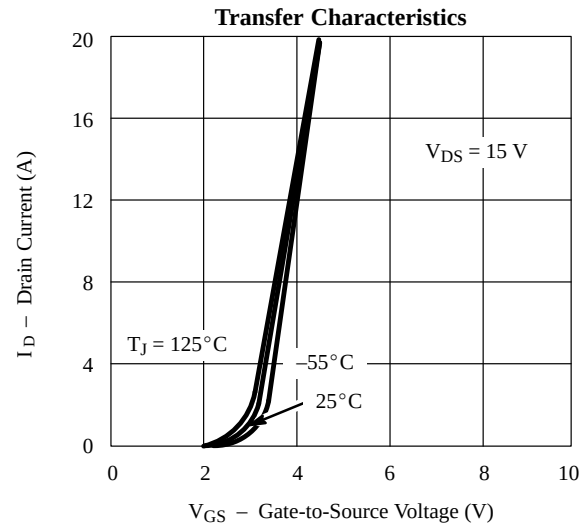
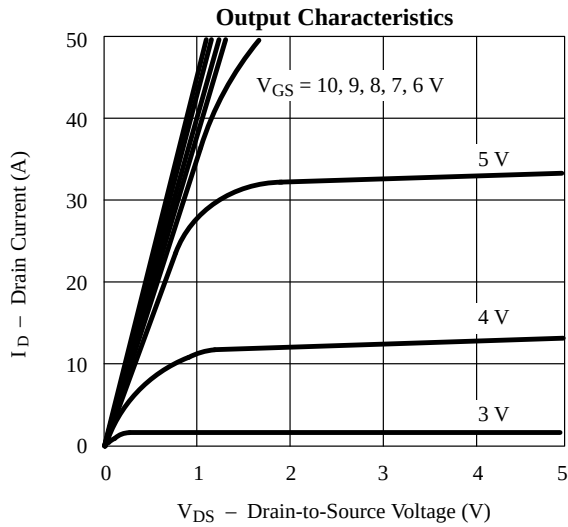
Specifications ($T_J = 25^\circ\text{C}$ Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ ^a	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	30			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 mA	1.0	2.1	3.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 500	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 24 V, V _{GS} = 0 V			25	μA
		V _{DS} = 24 V, V _{GS} = 0 V, T _J = 125°C			250	
On-State Drain Current ^b	I _{D(on)}	V _{DS} = 2 V, V _{GS} = 10V	30			A
Drain-Source On-State Resistance ^b	r _{DS(on)}	V _{GS} = 10 V, I _D = 15 A		0.023	0.030	Ω
		V _{GS} = 10 V, I _D = 15 A, T _J = 125°C		0.031	0.050	
		V _{GS} = 5 V, I _D = 15 A		0.035	0.045	
Forward Transconductance ^b	g _{fs}	V _{DS} = 15 V, I _D = 15 A		15		S
Dynamic						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		850		pF
Output Capacitance	C _{oss}			500		
Reverse Transfer Capacitance	C _{rss}			220		
Total Gate Charge ^c	Q _g	V _{DS} = 15 V, V _{GS} = 10 V, I _D = 30 A		30	35	nC
Gate-Source Charge ^c	Q _{gs}			5	8	
Gate-Drain Charge ^c	Q _{gd}			15	20	
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = 20 V, R _L = 0.6 Ω I _D ≅ 30 A, V _{GEN} = 10 V, R _G = 7.5 Ω		9	15	ns
Rise Time ^c	t _r			25	40	
Turn-Off Delay Time ^c	t _{d(off)}			27	40	
Fall Time ^c	t _f			25	35	
Source-Drain Diode Ratings and Characteristics (T _C = 25°C) ^b						
Pulsed Current	I _{SM}				100	A
Diode Forward Voltage	V _{SD}	I _F = 6 A, V _{GS} = 0 V		1.1	1.8	V

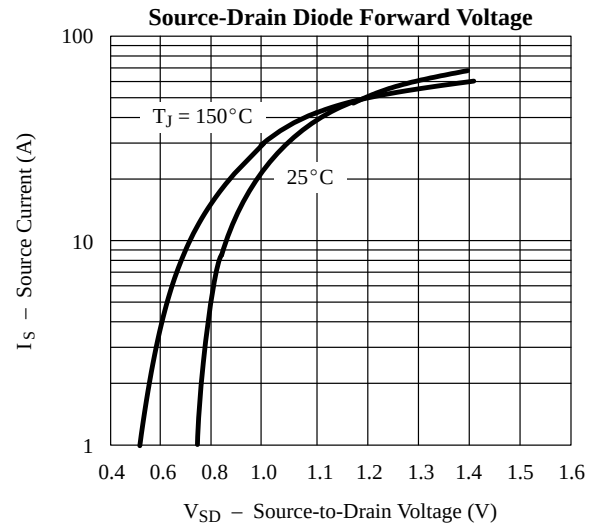
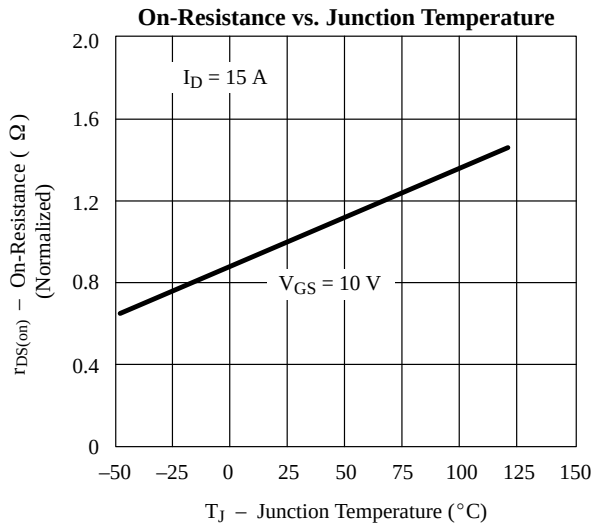
Notes:

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

Typical Characteristics (25°C Unless Otherwise Noted)



Typical Characteristics (25°C Unless Otherwise Noted)



Thermal Ratings

