



SUP/SUB75N08-10

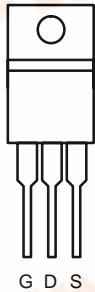
Vishay Siliconix

N-Channel 75-V (D-S), 175°C MOSFET

PRODUCT SUMMARY		
$V_{(BR)DSS}$ (V)	$r_{DS(on)}$ (Ω)	I_D (A)
75	0.010	75 ^a

175°C Rated
Maximum Junction Temperature
TrenchFET®
Power MOSFETs

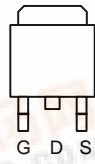
TO-220AB



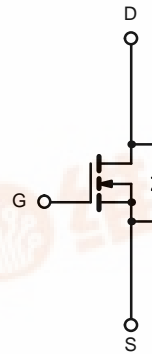
Top View
SUP75N08-10

DRAIN connected to TAB

TO-263



Top View
SUB75N08-10



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)				
Parameter		Symbol	Limit	Unit
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current ($T_J = 175^\circ\text{C}$)	$T_C = 25^\circ\text{C}$	I_D	75 ^a	A
	$T_C = 125^\circ\text{C}$		55	
Pulsed Drain Current		I_{DM}	240	
Avalanche Current		I_{AR}	60	
Repetitive Avalanche Energy ^b		E_{AR}	280	mJ
L = 0.1 mH				
Power Dissipation	$T_C = 25^\circ\text{C}$ (TO-220AB and TO-263)	P_D	187 ^c	W
	$T_A = 25^\circ\text{C}$ (TO-263) ^d		3.7	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 175	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS				
Parameter		Symbol	Limit	Unit
Junction-to-Ambient	PCB Mount (TO-263) ^d	R_{thJA}	40	$^\circ\text{C/W}$
	Free Air (TO-220AB)		62.5	
Junction-to-Case		R_{thJC}	0.8	

Notes
a. Package limited.
b. Duty cycle $\leq 1\%$.
c. See SOA curve for voltage derating.
d. When mounted on 1" square PCB (FR-4 material).



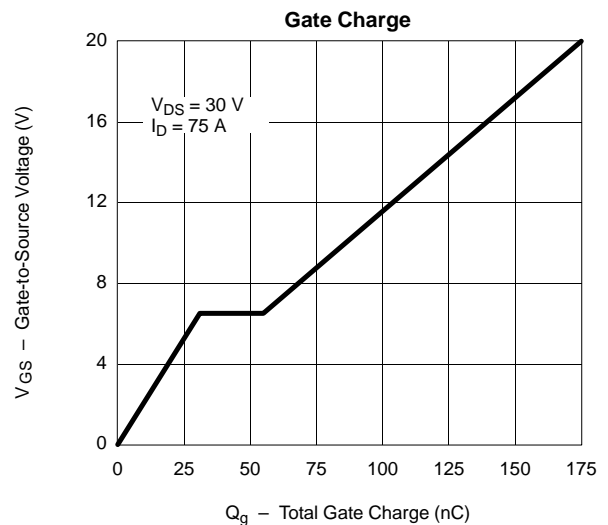
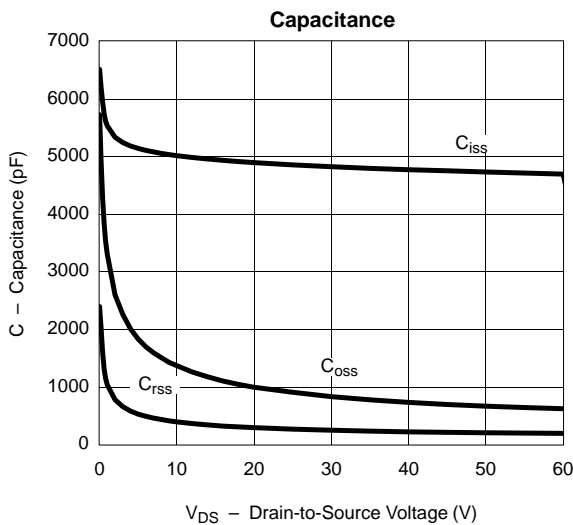
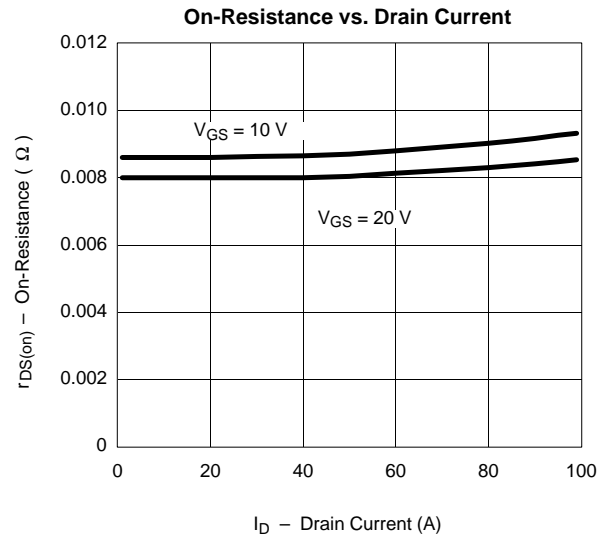
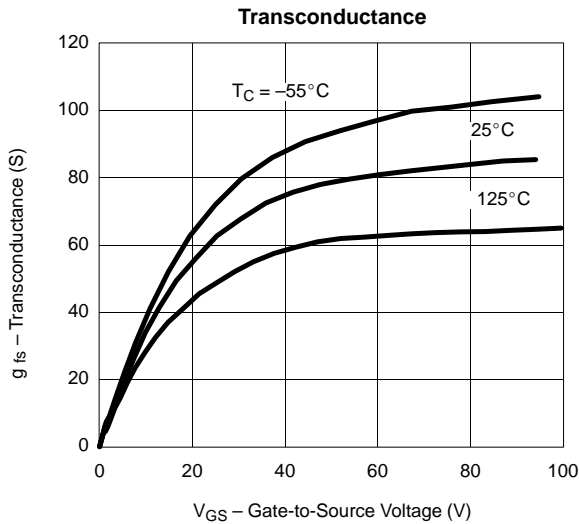
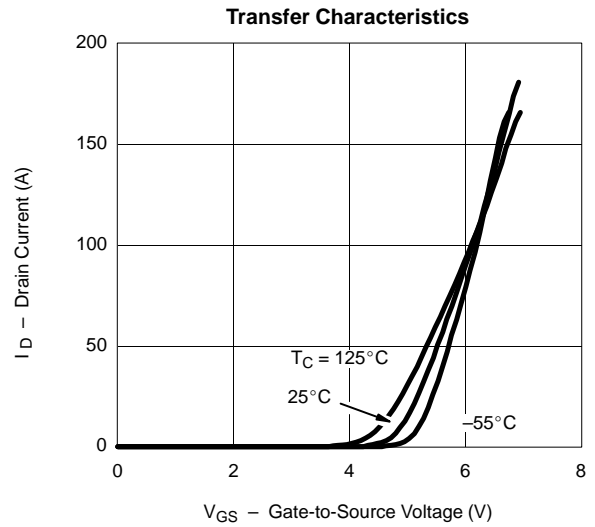
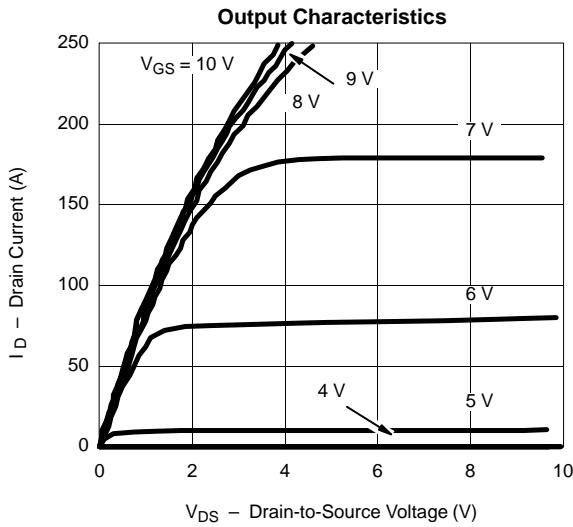
Specifications (T _J = 25 °C Unless Otherwise Noted)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	75			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250 μA	2.0	3.5	4.5	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ± 20 V			± 100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 75 V, V _{GS} = 0 V			1	μA
		V _{DS} = 75 V, V _{GS} = 0 V, T _J = 125 °C			50	
		V _{DS} = 75 V, V _{GS} = 0 V, T _J = 175 °C			150	
On-State Drain Current ^a	I _{D(on)}	V _{DS} = 5 V, V _{GS} = 10 V	120			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 30 A		0.0087	0.010	Ω
		V _{GS} = 10 V, I _D = 30 A, T _J = 125 °C			0.017	
		V _{GS} = 10 V, I _D = 30 A, T _J = 175 °C			0.021	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 30 A	30			S
Dynamic^b						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		4800		pF
Output Capacitance	C _{oss}			910		
Reverse Transfer Capacitance	C _{rss}			270		
Total Gate Charge ^c	Q _g	V _{DS} = 30 V, V _{GS} = 10 V, I _D = 75 A		85	120	nC
Gate-Source Charge ^c	Q _{gs}			31		
Gate-Drain Charge ^c	Q _{gd}			24		
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = 30 V, R _L = 0.47 Ω I _D ≅ 75 A, V _{GEN} = 10 V, R _G = 2.5 Ω		20	40	ns
Rise Time ^c	t _r			95	200	
Turn-Off Delay Time ^c	t _{d(off)}			65	120	
Fall Time ^c	t _f			20	60	
Source-Drain Diode Ratings and Characteristics (T_C = 25 °C)^b						
Continuous Current	I _S				75	A
Pulsed Current	I _{SM}				240	
Forward Voltage ^a	V _{SD}	I _F = 75 A, V _{GS} = 0 V		1.0	1.3	V
Reverse Recovery Time	t _{rr}	I _F = 75 A, di/dt = 100 A/μs		80	120	ns
Peak Reverse Recovery Current	I _{RM(REC)}			7	9	A
Reverse Recovery Charge	Q _{rr}			0.28	0.54	μC

Notes

- Pulse test: pulse width ≤ 300 μsec, duty cycle ≤ 2%.
- Guaranteed by design, not subject to production testing.
- Independent of operating temperature.

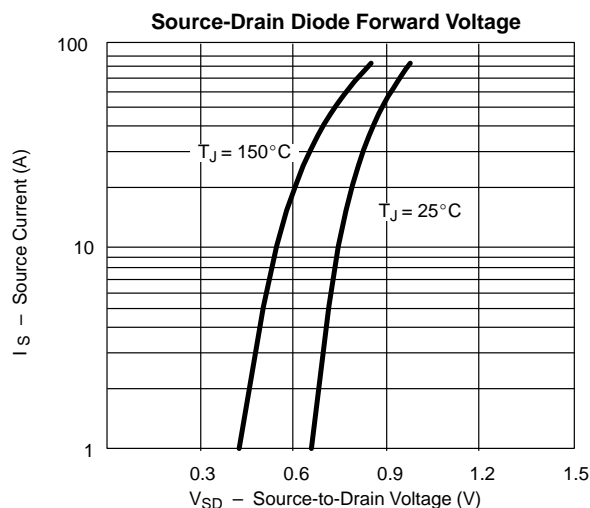
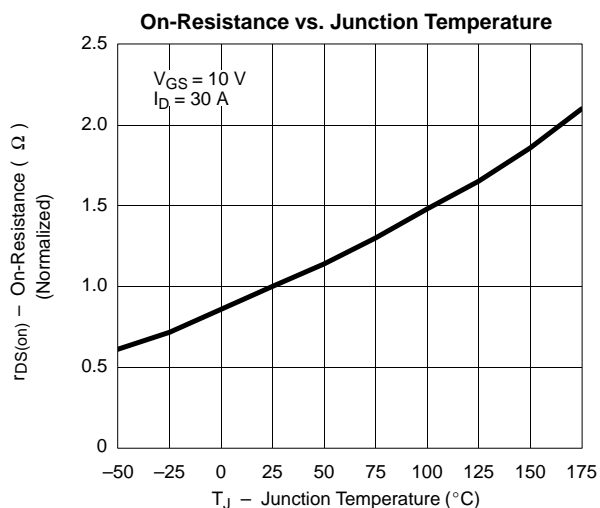


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)





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THERMAL RATINGS

