



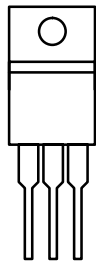
N-Channel 60-V (D-S), 175 °C MOSFET

PRODUCT SUMMARY

$V_{(BR)DSS}$ (V)	$r_{DS(on)}$ (Ω)	I_D (A)
60	0.018	60

175 °C Rated
Maximum Junction Temperature
TrenchFET[®]
Power MOSFETs

TO-220AB



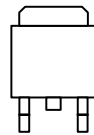
G D S

Top View

SUP60N06-18

DRAIN connected to TAB

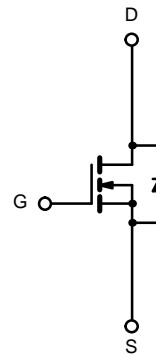
TO-263



G D S

Top View

SUB60N06-18



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 175^\circ\text{C}$)	I_D	$T_C = 25^\circ\text{C}$	60
		$T_C = 100^\circ\text{C}$	39
Pulsed Drain Current	I_{DM}	120	A
Avalanche Current	I_{AR}	60	
Repetitive Avalanche Energy ^a	E_{AR}	L = 0.1 mH	180
Power Dissipation			$T_C = 25^\circ\text{C}$ (TO-220AB and TO-263)
	$T_A = 25^\circ\text{C}$ (TO-263) ^c	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	R_{thJA}	PCB Mount (TO-263) ^c	40
		Free Air (TO-220AB)	62.5
Junction-to-Case	R_{thJC}	1.25	$^\circ\text{C/W}$

Notes:

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

For SPICE model information via the Worldwide Web: <http://www.vishay.com/www/product/spice.htm>



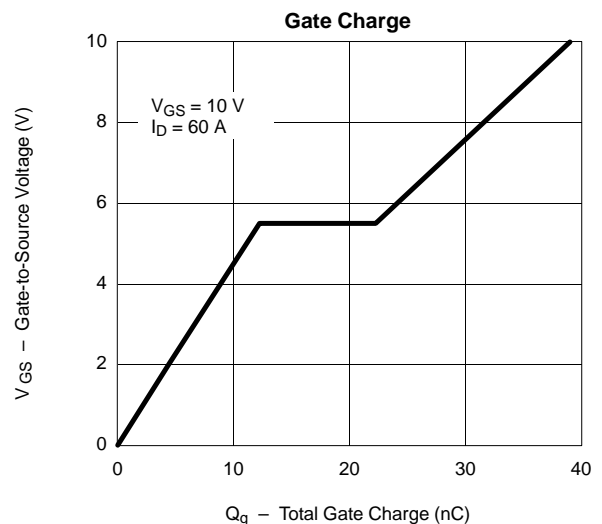
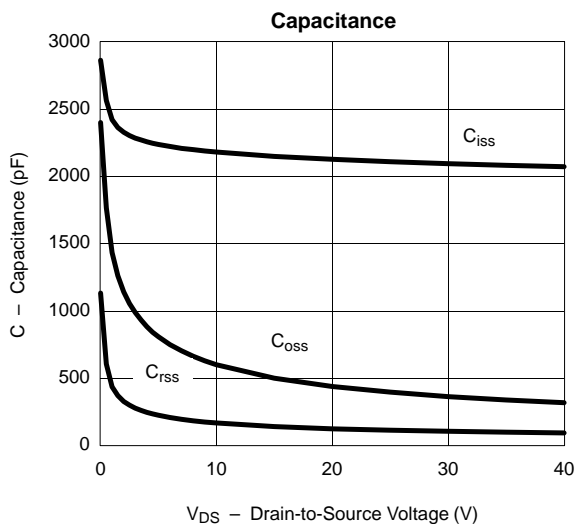
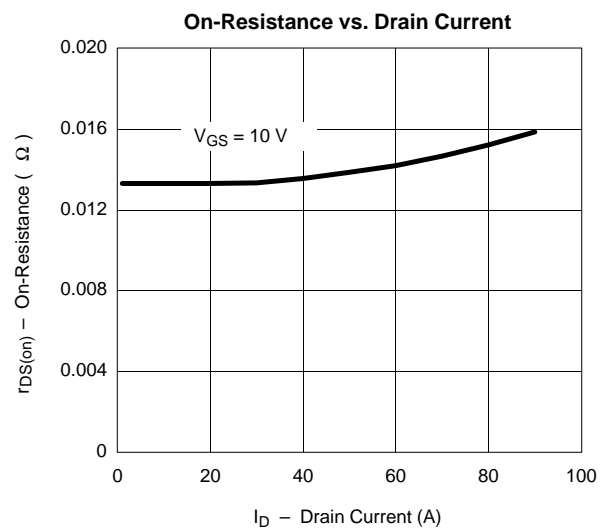
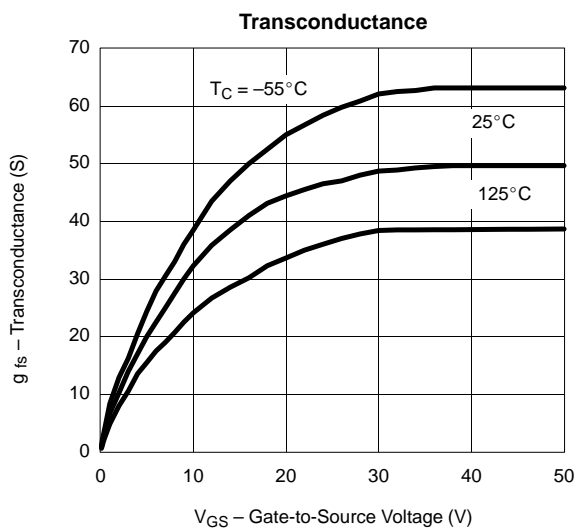
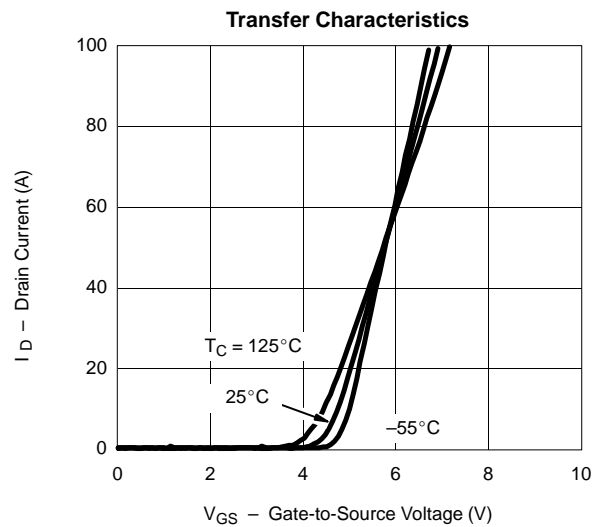
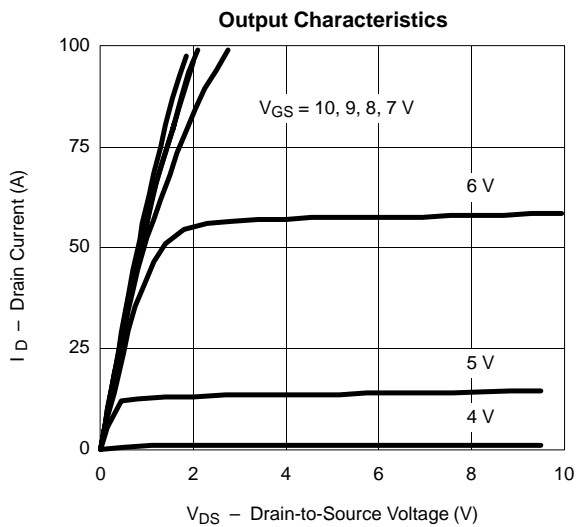
SPECIFICATIONS (T _J = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V _{(BR)DSS}	V _{GS} = 0 V, I _D = 250 μA	60			V
Gate Threshold Voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _{DS} = 1 mA	2.0		4.0	
Gate-Body Leakage	I _{GSS}	V _{DS} = 0 V, V _{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I _{DSS}	V _{DS} = 60 V, V _{GS} = 0 V			1	μA
		V _{DS} = 60 V, V _{GS} = 0 V, T _J = 125 °C			50	
		V _{DS} = 60 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	60			A
Drain-Source On-State Resistance ^a	r _{DS(on)}	V _{GS} = 10 V, I _D = 30 A		0.014	0.018	Ω
		V _{GS} = 10 V, I _D = 30 A, T _J = 125 °C		0.024	0.030	
		V _{GS} = 10 V, I _D = 30 A, T _J = 175 °C		0.031	0.036	
Forward Transconductance ^a	g _{fs}	V _{DS} = 15 V, I _D = 30 A		49		S
Dynamic^b						
Input Capacitance	C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		2000		pF
Output Capacitance	C _{oss}			400		
Reverse Transfer Capacitance	C _{rss}			115		
Total Gate Charge ^c	Q _g	V _{DS} = 30 V, V _{GS} = 10 V, I _D = 60 A		39	60	nC
Gate-Source Charge ^c	Q _{gs}			12		
Gate-Drain Charge ^c	Q _{gd}			10		
Turn-On Delay Time ^c	t _{d(on)}	V _{DD} = 30 V, R _L = 0.5 Ω I _D = 60 A, V _{GEN} = 10 V, R _G = 2.5 Ω		12	30	ns
Rise Time ^c	t _r			11	30	
Turn-Off Delay Time ^c	t _{d(off)}			25	50	
Fall Time ^c	t _f			15	30	
Source-Drain Diode Ratings and Characteristics (T_C = 25 °C)^b						
Continuous Current	I _s				60	A
Pulsed Current	I _{SM}				120	
Forward Voltage ^a	V _{SD}	I _F = 60 A, V _{GS} = 0 V			1.6	V
Reverse Recovery Time	t _{rr}	I _F = 60 A, di/dt = 100 A/μs		60		ns
Peak Reverse Recovery Current	I _{RM(REC)}			6.0		A
Reverse Recovery Charge	Q _{rr}			0.4		μC

Notes:

- a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
- b. Guaranteed by design, not subject to production testing.
- c. Independent of operating temperature.

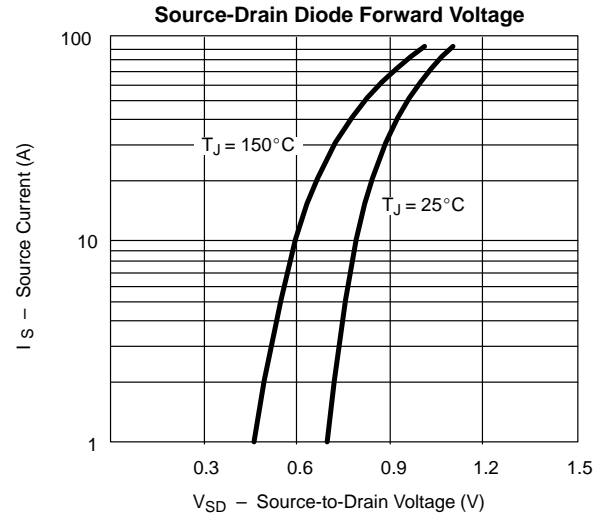
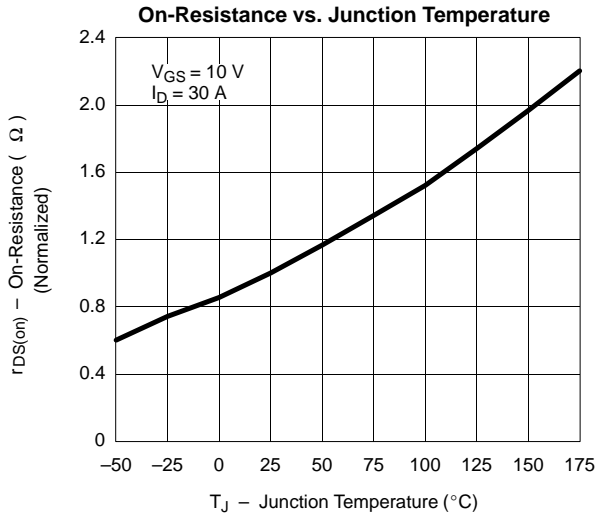


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

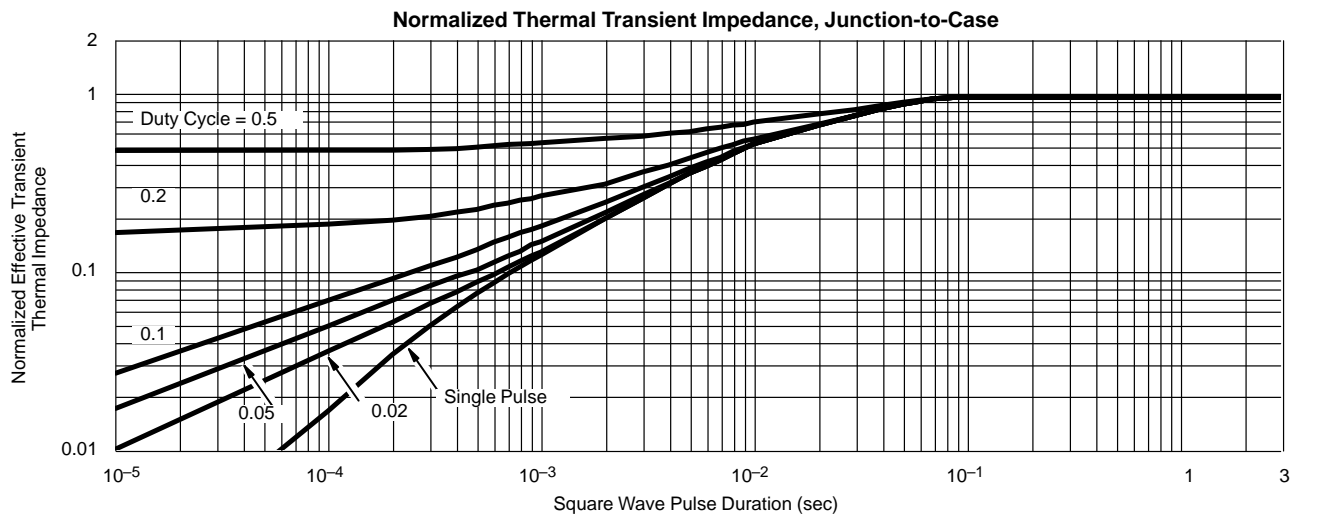
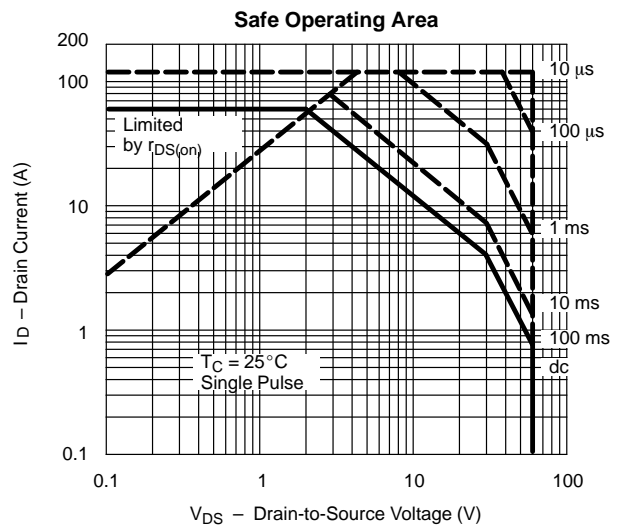
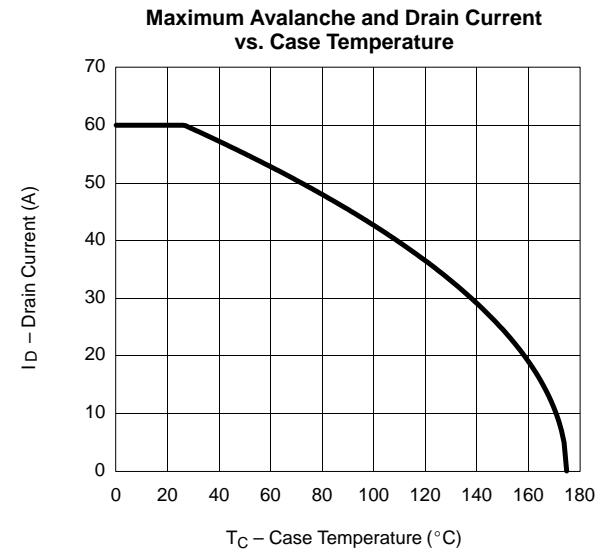




TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)



THERMAL RATINGS





Notice

Specifications of the products displayed herein are subject to change without notice. Vishay Intertechnology, Inc., or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document. Except as provided in Vishay's terms and conditions of sale for such products, Vishay assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of Vishay products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify Vishay for any damages resulting from such improper use or sale.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Vishay:](#)

[SUP60N06-18-E3](#) [SUB60N06-18-E3](#) [SUP60N06-18](#) [SUB60N06-18](#)