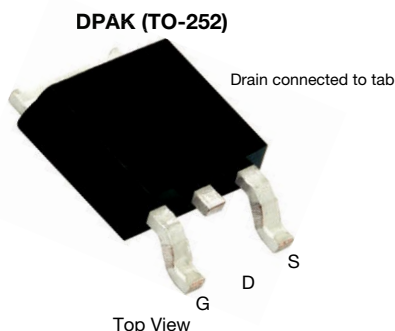


P-Channel 60 V (D-S) MOSFET

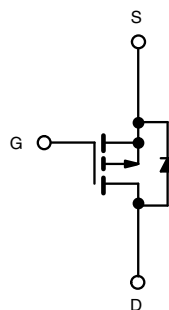


FEATURES

- TrenchFET® power MOSFETs
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE



P-Channel MOSFET

PRODUCT SUMMARY

V_{DS} (V)	-60
$R_{DS(on)}$ max. (Ω) at $V_{GS} = -10$ V	0.155
$R_{DS(on)}$ max. (Ω) at $V_{GS} = -4.5$ V	0.280
Q_g typ. (nC)	12.5
I_D (A)	-8.4
Configuration	Single

ORDERING INFORMATION

Package	DPAK (TO-252)
Lead (Pb)-free and halogen-free	SUD08P06-155L-GE3

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 ($T_J = 150^\circ\text{C}$)	I_D	$T_C = 25^\circ\text{C}$	-8.2
		$T_C = 100^\circ\text{C}$	-5.2
Pulsed drain current	I_{DM}	-18	A
Continuing source current (diode conduction)	I_S	-8.4	
Avalanche current	I_{AS}	-12	
Single pulse avalanche energy	E_{AS}	7.2	mJ
Maximum power dissipation	P_D	$T_C = 25^\circ\text{C}$	20.8 ^a
		$T_A = 25^\circ\text{C}$	1.7 ^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
Junction-to-ambient ^b	R_{thJA}	$t \leq 10$ s	20	$^\circ\text{C/W}$
		Steady state	62	
Junction-to-case	R_{thJC}	5	6	

Notes

- a. See SOA curve for voltage derating
b. Surface mounted on 1" x 1" FR-4 board



SPECIFICATIONS (T _J = 25 °C, unless otherwise noted)						
PARAMETER	SYMBOL	TEST CONDITIONS	MIN.	TYP. ^a	MAX.	UNIT
Static						
Drain-source breakdown voltage	V _{DS}	V _{GS} = 0 V, I _D = -250 μA	-60	-	-	V
Gate threshold voltage	V _{GS(th)}	V _{DS} = V _{GS} , I _D = -250 μA	-1	-2	-	
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 = 150 °C	-	-	-150	
On-state drain current ^b	I _{D(on)}	V _{DS} = -5 V, V _{GS} = -10 V	-10	-	-	A
Drain-source on-state resistance ^b	R _{DS(on)}	V _{GS} = -10 V, I _D = -5 A	-	0.125	0.155	Ω
		V _{GS} = -10 V, I _D = -5 A, T _J = 125 °C	-	-	0.280	
		V _{GS} = -10 V, I _D = -5 A, T _J = 150 °C	-	-	0.350	
		V _{GS} = -4.5 V, I _D = -2 A	-	0.158	0.280	
Forward transconductance ^b	g _{fs}	V _{DS} = -15 V, I _D = -5 A	-	8	-	S
Dynamic						
Input capacitance	C _{ISS}	V _{DS} = -25 V, V _{GS} = 0 V, f = 1 MHz	-	450	-	pF
Output capacitance	C _{OSS}		-	65	-	
Reverse transfer capacitance	C _{RSS}		-	40	-	
Total gate charge	Q _g	V _{DS} = -30 V, V _{GS} = -10 V, I _D = -8.4 A	-	12.5	19	nC
Gate-source charge	Q _{gs}		-	2.3	-	
Gate-drain charge	Q _{gd}		-	3.2	-	
Gate resistance	R _g	f = 1 MHz	-	8	-	Ω
Turn-on delay time ^c	t _{d(on)}	V _{DD} = -30 V, R _L = 3.57 Ω I _D ≅ -8.4 A, V _{GEN} = -10 V, R _g = 2.5 Ω	-	5	10	ns
Rise time ^c	t _r		-	14	25	
Turn-off delay time ^c	t _{d(off)}		-	15	25	
Fall time ^c	t _f		-	7	12	
Source-Drain Diode Ratings and Characteristics (T _C = 25 °C) ^b						
Pulsed current	I _{SM}		-	-	-20	A
Forward voltage ^b	V _{SD}	I _F = -2 A, V _{GS} = 0 V	-	-0.9	-1.3	V
Reverse recovery time	t _{rr}	I _F = -8 A, di/dt = 100 A/μs	-	50	80	ns
Reverse recovery time	Q _{rr}		-	80	120	nC

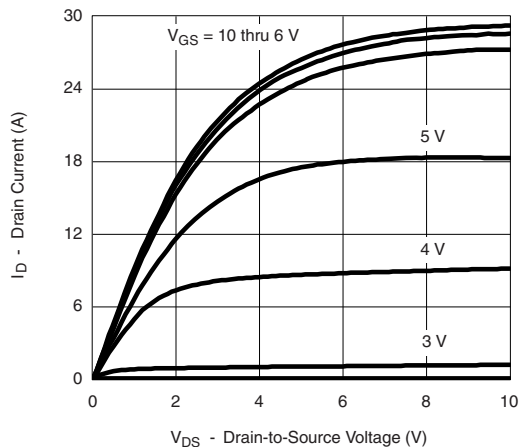
Notes

- a. Guaranteed by design, not subject to production testing
b. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$
c. Independent of operating temperature

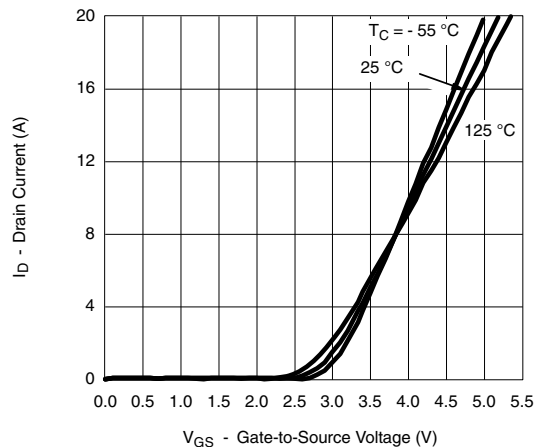
Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.



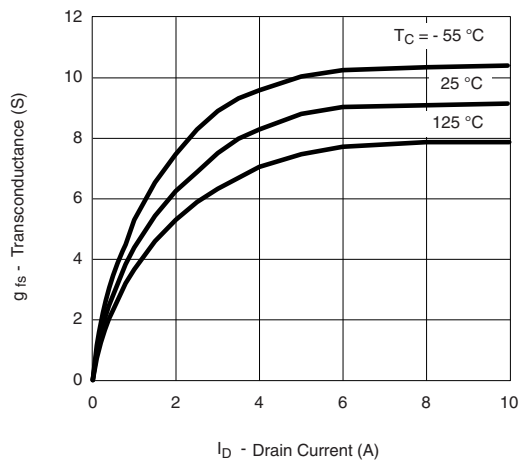
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



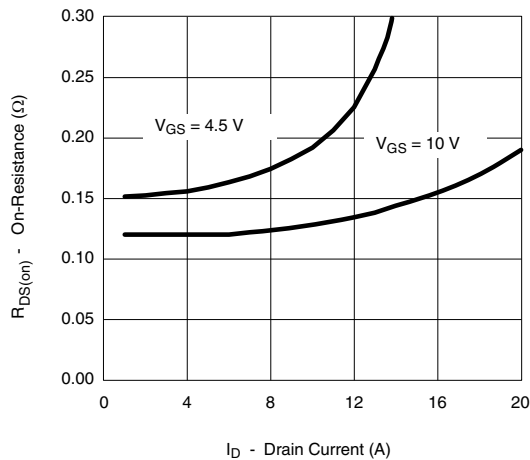
Output Characteristics



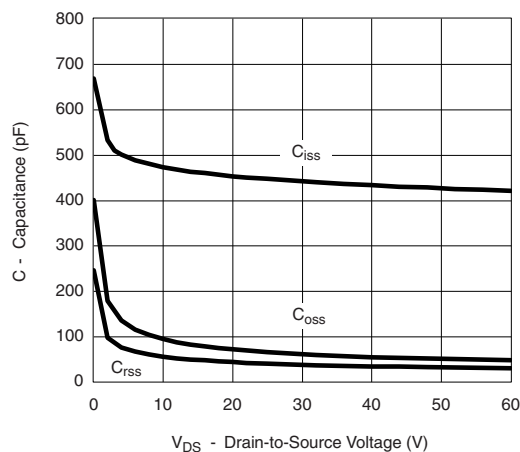
Transfer Characteristics



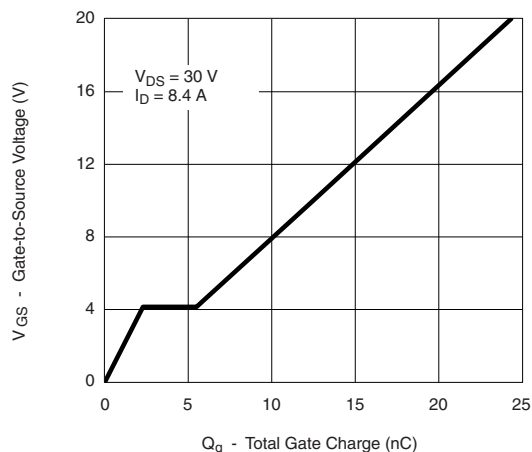
Transconductance



On-Resistance vs. Drain Current



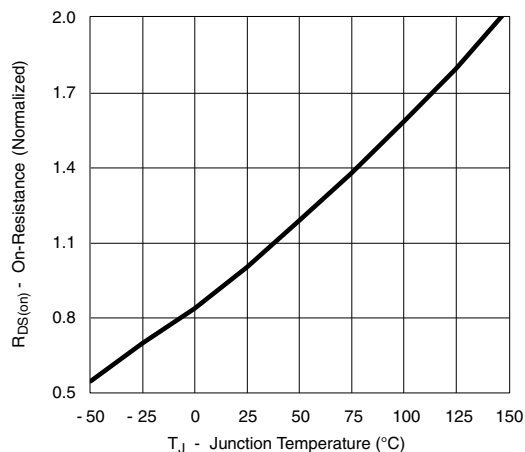
Capacitance



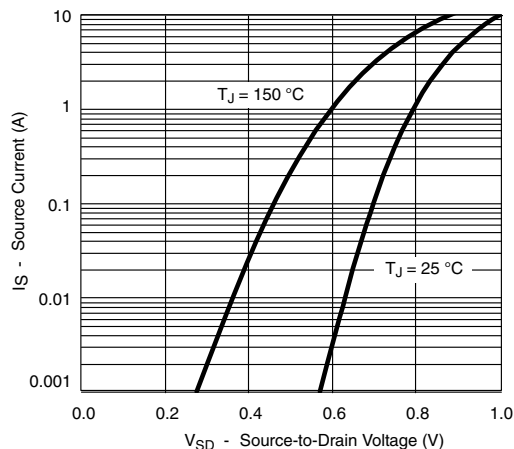
Gate Charge



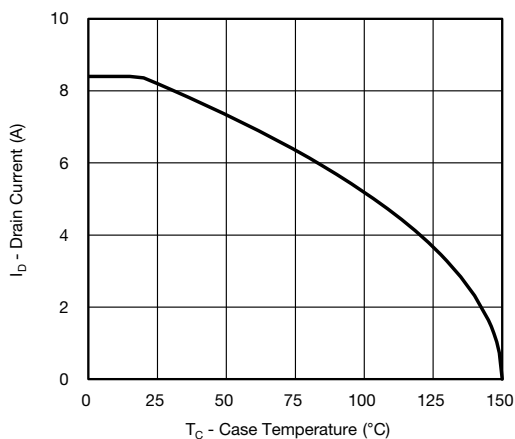
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



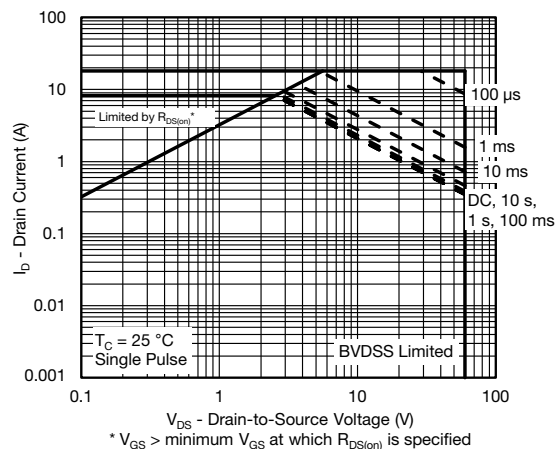
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage



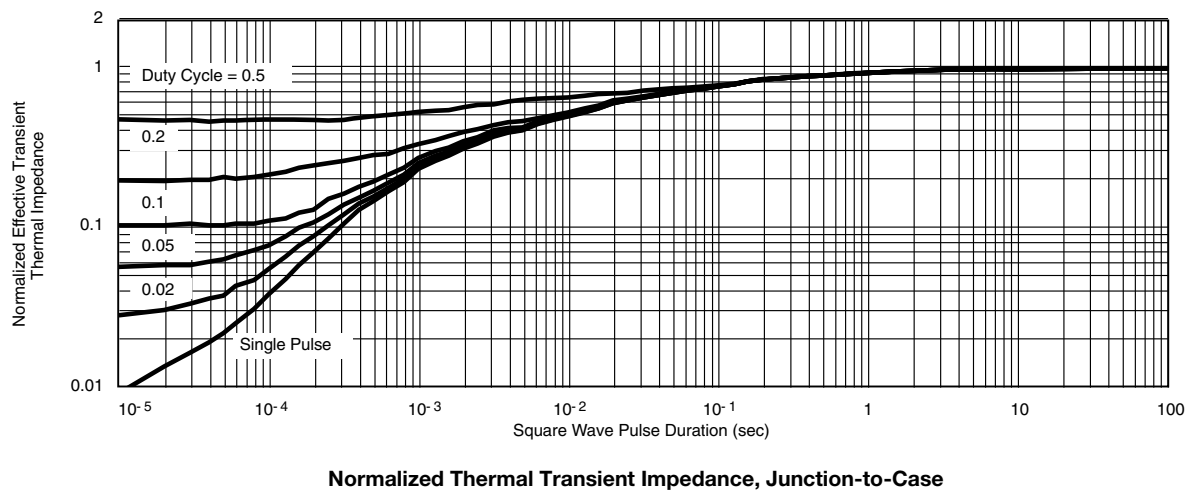
Drain Current vs. Case Temperature



Safe Operating Area



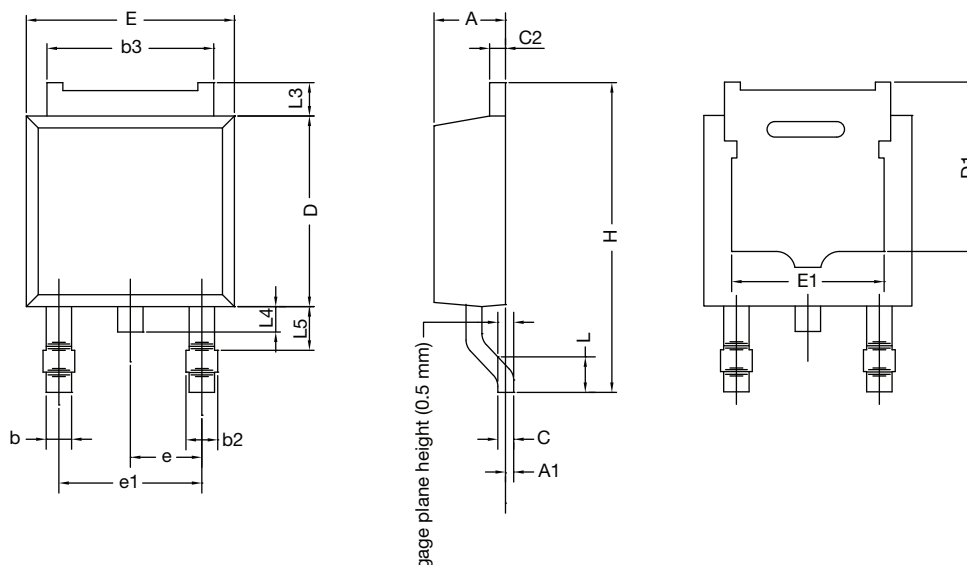
TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)



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TO-252AA Case Outline

VERSION 1: FACILITY CODE = Y



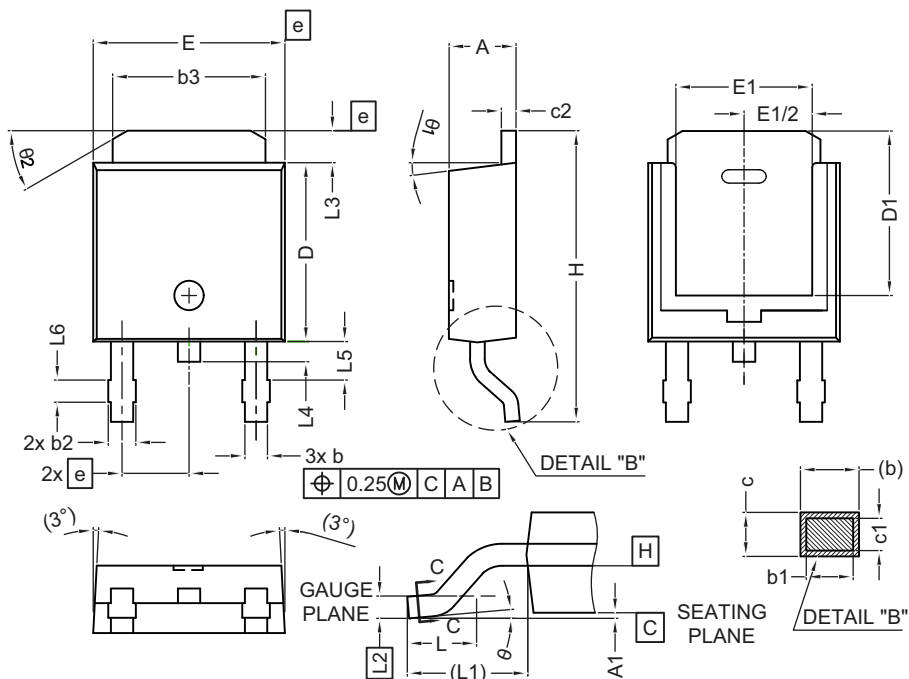
MILLIMETERS		
DIM.	MIN.	MAX.
A	2.18	2.38
A1	-	0.127
b	0.64	0.88
b2	0.76	1.14
b3	4.95	5.46
C	0.46	0.61
C2	0.46	0.89
D	5.97	6.22
D1	4.10	-
E	6.35	6.73
E1	4.32	-
H	9.40	10.41
e	2.28 BSC	
e1	4.56 BSC	
L	1.40	1.78
L3	0.89	1.27
L4	-	1.02
L5	1.01	1.52

Note

- Dimension L3 is for reference only



VERSION 2: FACILITY CODE = N



DIM.	MILLIMETERS	
	MIN.	MAX.
A	2.18	2.39
A1	-	0.13
b	0.65	0.89
b1	0.64	0.79
b2	0.76	1.13
b3	4.95	5.46
c	0.46	0.61
c1	0.41	0.56
c2	0.46	0.60
D	5.97	6.22
D1	5.21	-
E	6.35	6.73
E1	4.32	-
e	2.29 BSC	
H	9.94	10.34

DIM.	MILLIMETERS	
	MIN.	MAX.
L	1.50	1.78
L1	2.74 ref.	
L2	0.51 BSC	
L3	0.89	1.27
L4	-	1.02
L5	1.14	1.49
L6	0.65	0.85
θ	0°	10°
θ_1	0°	15°
θ_2	25°	35°

Notes

- Dimensioning and tolerance confirm to ASME Y14.5M-1994
- All dimensions are in millimeters. Angles are in degrees
- Heat sink side flash is max. 0.8 mm
- Radius on terminal is optional

ECN: E19-0649-Rev. Q, 16-Dec-2019
DWG: 5347

RECOMMENDED MINIMUM PADS FOR DPAK (TO-252)



Recommended Minimum Pads
Dimensions in Inches/(mm)

[Return to Index](#)



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