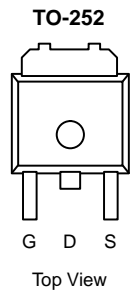
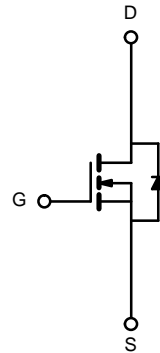


PRODUCT SUMMARY		
V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A) <sup>a</sup>
30	0.018 @ V <sub>GS</sub> = 10 V	± 40
	0.027 @ V <sub>GS</sub> = 4.5 V	± 34



Order Number:  
SUD40N03-18P

Drain Connected to Tab



N-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> = 25 °C UNLESS OTHERWISE NOTED)			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V <sub>DS</sub>	30	V
Gate-Source Voltage	V <sub>GS</sub>	± 20	
Continuous Drain Current (T <sub>J</sub> = 175 °C) <sup>b</sup>	I <sub>D</sub>	T <sub>C</sub> = 25 °C	± 40
		T <sub>C</sub> = 100 °C	± 28
Pulsed Drain Current	I <sub>DM</sub>	± 100	A
Continuous Source Current (Diode Conduction) <sup>a</sup>	I <sub>S</sub>	40	
Maximum Power Dissipation	P <sub>D</sub>	T <sub>C</sub> = 25 °C	62.5 <sup>c</sup>
		T <sub>A</sub> = 25 °C	7.5 <sup>b</sup>
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 175	°C

THERMAL RESISTANCE RATINGS					
Parameter	Symbol	Typical	Maximum	Unit	
Junction-to-Ambient <sup>b</sup>	R <sub>thJA</sub>	t ≤ 10 sec	17	20	°C/W
		Steady State	50	60	
Junction-to-Case	R <sub>thJC</sub>	2	2.4		
Junction-to-Lead	R <sub>thJL</sub>	4	4.8	°C/W	

Notes

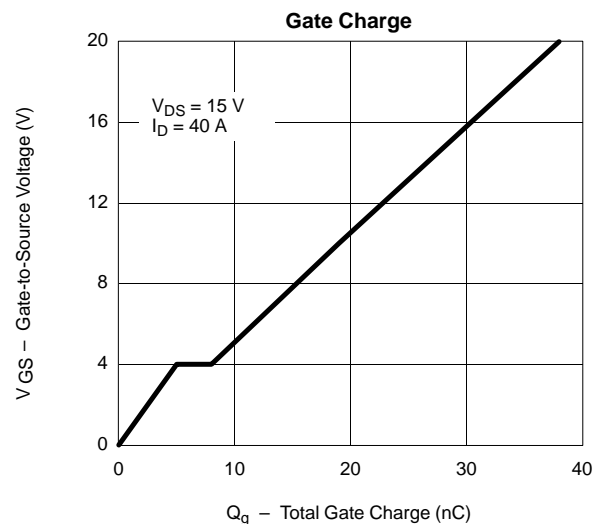
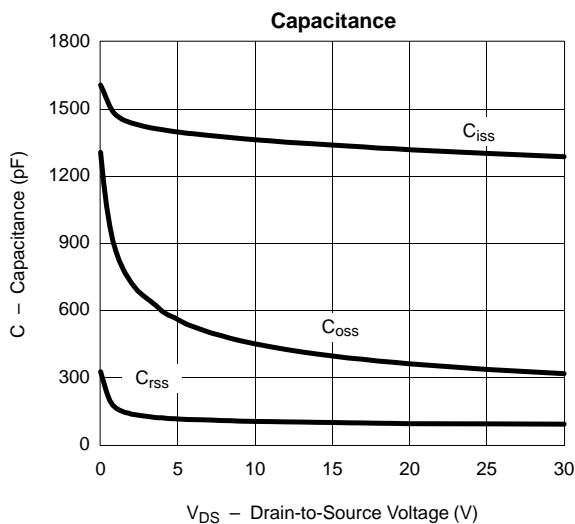
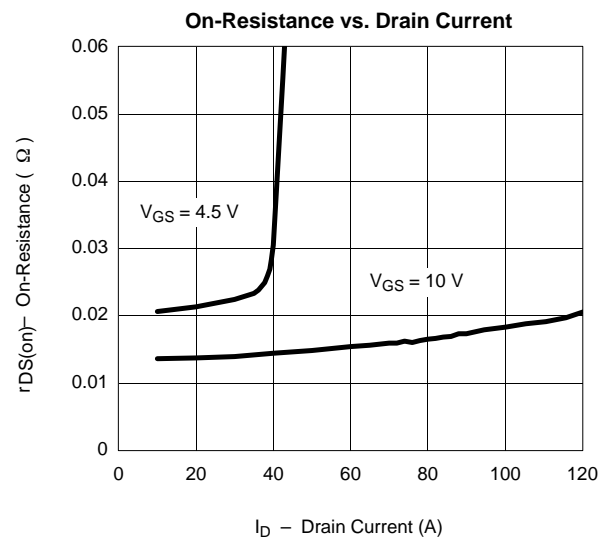
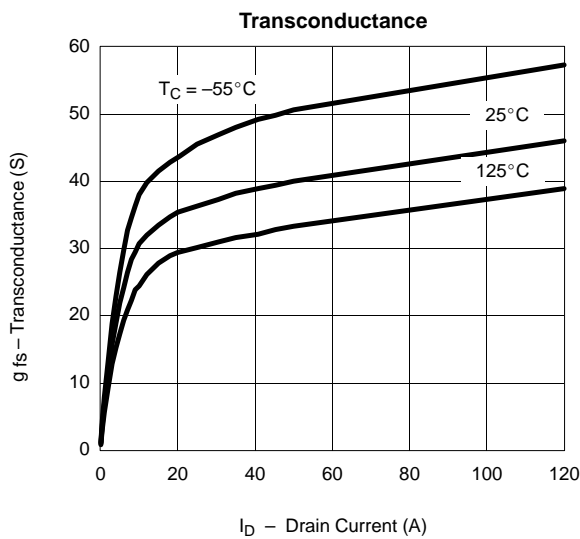
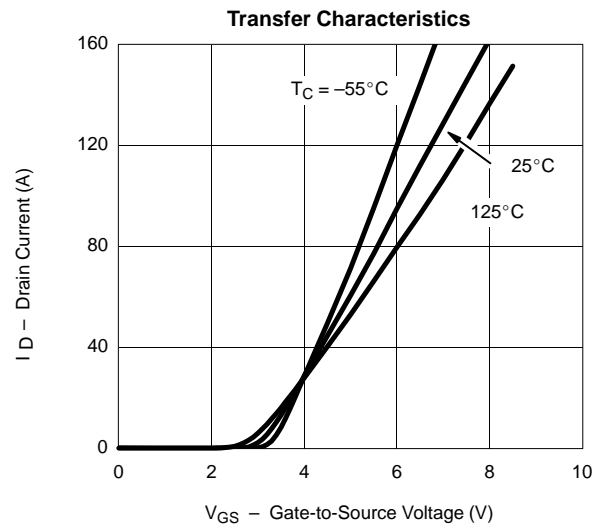
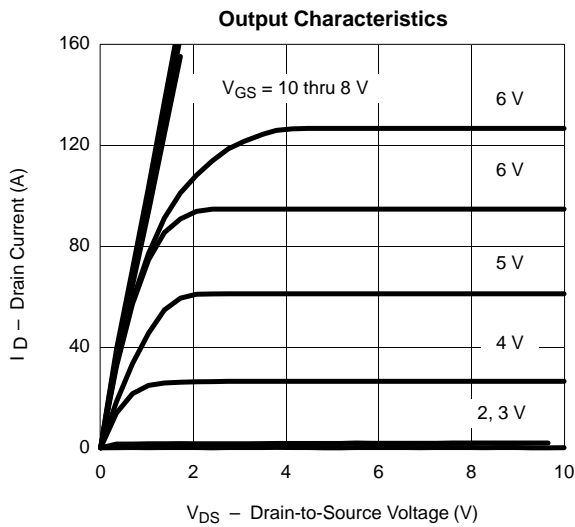
- Package Limited.
- Surface Mounted on 1" x 1" FR4 Board, t ≤ 10 sec.
- See SOA curve for voltage derating.

SPECIFICATIONS (T <sub>J</sub> = 25 °C UNLESS OTHERWISE NOTED)						
Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	V <sub>(BR)DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA	30			V
Gate Threshold Voltage	V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 250 μA	1.0			
Gate-Body Leakage	I <sub>GSS</sub>	V <sub>DS</sub> = 0 V, V <sub>GS</sub> = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I <sub>DSS</sub>	V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V			1	μA
		V <sub>DS</sub> = 24 V, V <sub>GS</sub> = 0 V, T <sub>J</sub> = 125 °C			50	
On-State Drain Current <sup>b</sup>	I <sub>D(on)</sub>	V <sub>DS</sub> = 5 V, V <sub>GS</sub> = 10 V	40			A
Drain-Source On-State Resistance <sup>b</sup>	r <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 20 A		0.014	0.018	Ω
		V <sub>GS</sub> = 10 V, I <sub>D</sub> = 20 A, T <sub>J</sub> = 125 °C			0.029	
		V <sub>GS</sub> = 4.5 V, I <sub>D</sub> = 10 A		0.021	0.027	
Forward Transconductance <sup>b</sup>	g <sub>fs</sub>	V <sub>DS</sub> = 15 V, I <sub>D</sub> = 20 A	10			S
<b>Dynamic<sup>a</sup></b>						
Input Capacitance	C <sub>iss</sub>	V <sub>GS</sub> = 0 V, V <sub>DS</sub> = 25 V, F = 1 MHz		1300		pF
Output Capacitance	C <sub>oss</sub>			340		
Reverse Transfer Capacitance	C <sub>rss</sub>			95		
Total Gate Charge <sup>c</sup>	Q <sub>g</sub>	V <sub>DS</sub> = 15 V, V <sub>GS</sub> = 10 V, I <sub>D</sub> = 40 A		19	30	nC
Gate-Source Charge <sup>c</sup>	Q <sub>gs</sub>			5		
Gate-Drain Charge <sup>c</sup>	Q <sub>gd</sub>			3		
Turn-On Delay Time <sup>c</sup>	t <sub>d(on)</sub>	V <sub>DD</sub> = 15 V, R <sub>L</sub> = 0.37 Ω I <sub>D</sub> ≅ 40 A, V <sub>GEN</sub> = 10 V, R <sub>G</sub> = 2.5 Ω		8	12	ns
Rise Time <sup>c</sup>	t <sub>r</sub>			8.5	13	
Turn-Off Delay Time <sup>c</sup>	t <sub>d(off)</sub>			17	25	
Fall Time <sup>c</sup>	t <sub>f</sub>			6	9	
<b>Source-Drain Diode Ratings and Characteristic (T<sub>C</sub> = 25 °C)</b>						
Continuous Current	I <sub>S</sub>				40	A
Pulsed Current	I <sub>SM</sub>				80	
Diode Forward Voltage <sup>b</sup>	V <sub>SD</sub>	I <sub>F</sub> = 100 A, V <sub>GS</sub> = 0 V			1.5	V
Source-Drain Reverse Recovery Time	t <sub>rr</sub>	I <sub>F</sub> = 40 A, di/dt = 100 A/μs		30	50	ns

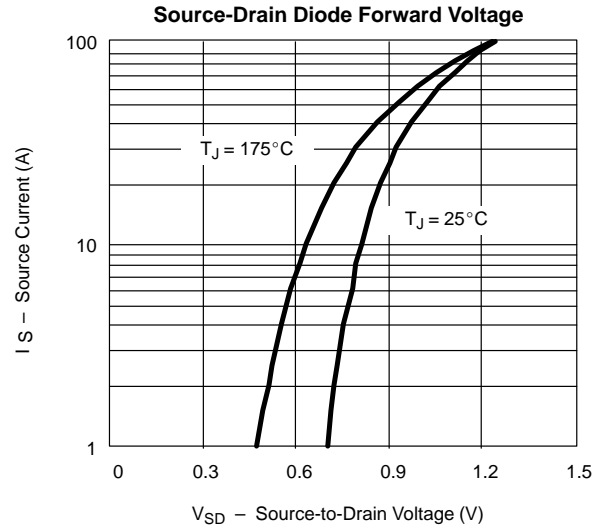
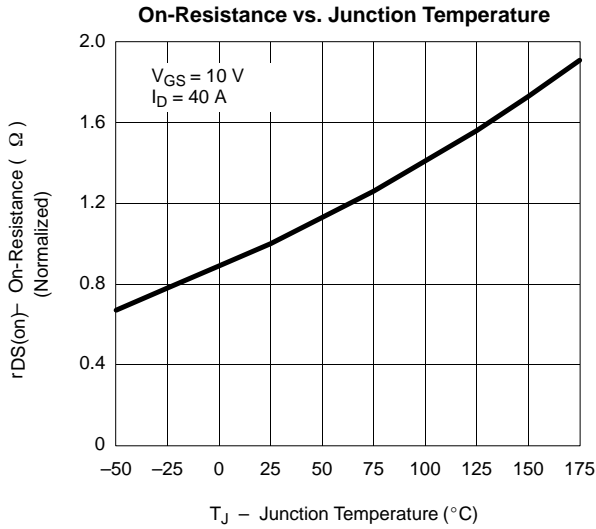
**Notes**

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

**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**



**TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)**



**THERMAL RATINGS**

