

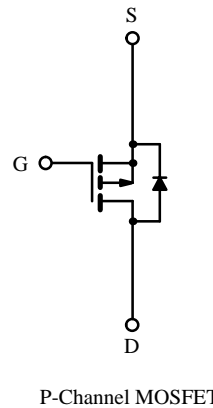
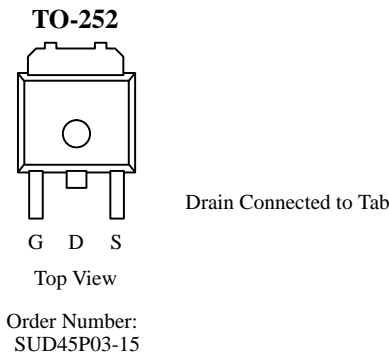


# P-Channel 30-V (D-S), 150°C MOSFET

## Product Summary

V <sub>DS</sub> (V)	r <sub>DS(on)</sub> (Ω)	I <sub>D</sub> (A) <sup>a</sup>
-30	0.015 @ V <sub>GS</sub> = -10 V	± 13
	0.024 @ V <sub>GS</sub> = -4.5 V	± 8

**TrenchFET™**  
Power MOSFETs



## 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 <sup>b</sup>	I <sub>D</sub>	T <sub>A</sub> = 25°C	± 13
		T <sub>A</sub> = 100°C	± 8
Pulsed Drain Current	I <sub>DM</sub>	± 100	A
Continuous Source Current (Diode Conduction)	I <sub>S</sub>	-13	
Maximum Power Dissipation <sup>b</sup>	P <sub>D</sub>	T <sub>C</sub> = 25°C	70
		T <sub>A</sub> = 25°C	4 <sup>a</sup>
Operating Junction and Storage Temperature Range	T <sub>J</sub> , T <sub>stg</sub>	-55 to 150	°C

## Thermal Resistance Ratings

Parameter	Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient <sup>b</sup>	R <sub>thJA</sub>		30	°C/W
Maximum Junction-to-Case	R <sub>thJC</sub>		1.8	

### Notes

- a. Calculated Rating for T<sub>A</sub> = 25°C, for comparison purposes only. This cannot be used as continuous rating (see Absolute Maximum Ratings and Typical Characteristics).
- b. Surface Mounted on FR4 Board, t ≤ 10 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #70267.



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

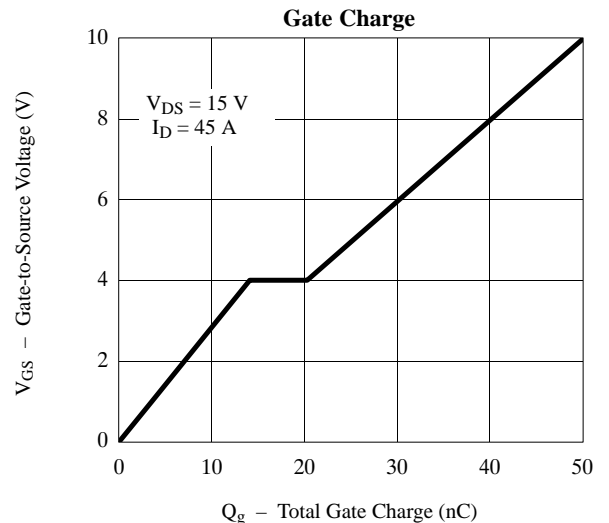
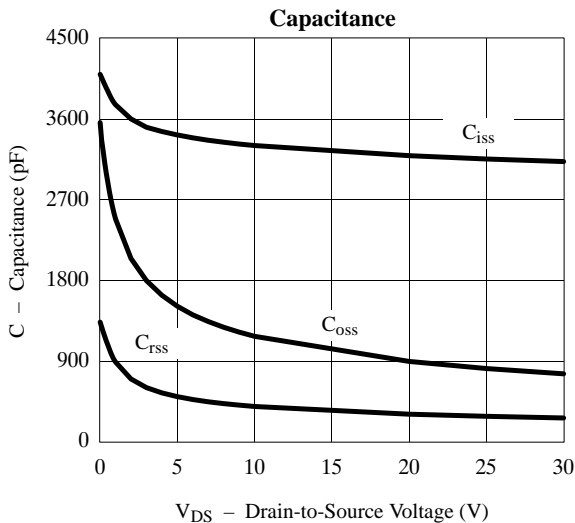
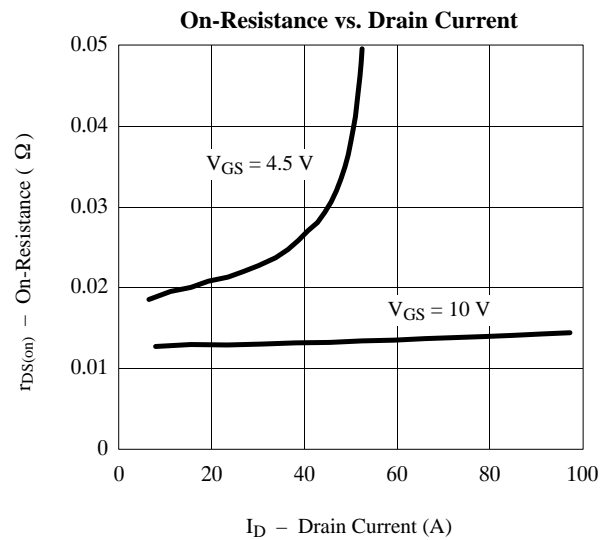
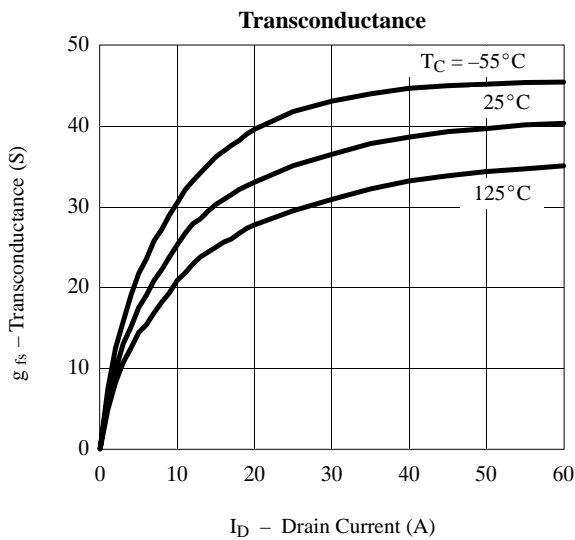
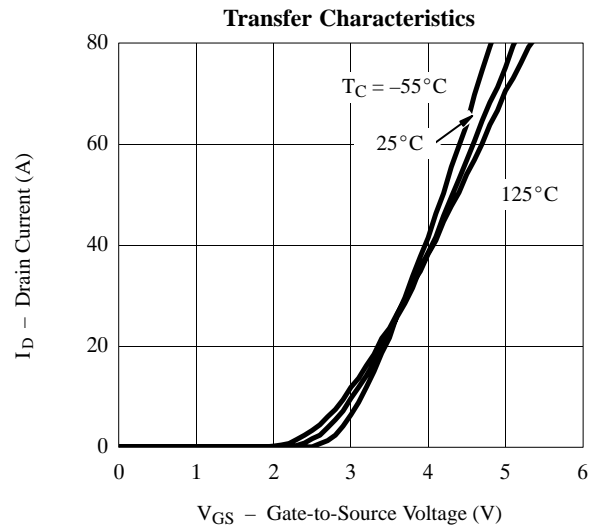
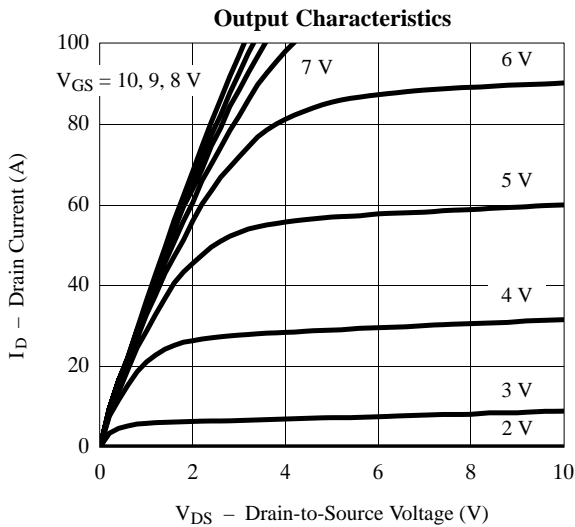
Parameter	Symbol	Test Condition	Min	Typ <sup>a</sup>	Max	Unit
<b>Static</b>						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}, I_D = -250\ \mu\text{A}$	-30			V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = -250\ \mu\text{A}$	-1.0			
Gate-Body Leakage	$I_{GSS}$	$V_{DS} = 0\text{ V}, V_{GS} = \pm 20\text{ V}$			$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = -30\text{ V}, V_{GS} = 0\text{ V}$			-1	$\mu\text{A}$
		$V_{DS} = -30\text{ V}, V_{GS} = 0\text{ V}, T_J = 125^\circ\text{C}$			-50	
On-State Drain Current <sup>b</sup>	$I_{D(on)}$	$V_{DS} = -5\text{ V}, V_{GS} = -10\text{ V}$	-50			A
		$V_{DS} = -5\text{ V}, V_{GS} = -4.5\text{ V}$	-20			
Drain-Source On-State Resistance <sup>b</sup>	$r_{DS(on)}$	$V_{GS} = -10\text{ V}, I_D = -13\text{ A}$		0.012	0.015	$\Omega$
		$V_{GS} = -10\text{ V}, I_D = -13\text{ A}, T_J = 125^\circ\text{C}$		0.018	0.026	
		$V_{GS} = -4.5\text{ V}, I_D = -13\text{ A}$		0.020	0.024	
Forward Transconductance <sup>b</sup>	$g_{fs}$	$V_{DS} = -15\text{ V}, I_D = -13\text{ A}$	20			S
<b>Dynamic<sup>a</sup></b>						
Input Capacitance	$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = -25\text{ V}, F = 1\text{ MHz}$		3200		$\text{pF}$
Output Capacitance	$C_{oss}$			800		
Reverse Transfer Capacitance	$C_{rss}$			280		
Total Gate Charge <sup>c</sup>	$Q_g$	$V_{DS} = -15\text{ V}, V_{GS} = -10\text{ V}, I_D = -45\text{ A}$		50	125	nC
Gate-Source Charge <sup>c</sup>	$Q_{gs}$			14		
Gate-Drain Charge <sup>c</sup>	$Q_{gd}$			6.2		
Turn-On Delay Time <sup>c</sup>	$t_{d(on)}$	$V_{DD} = -15\text{ V}, R_L = 0.33\ \Omega$ $I_D \cong -45\text{ A}, V_{GEN} = -10\text{ V}, R_G = 2.4\ \Omega$		13	20	ns
Rise Time <sup>c</sup>	$t_r$			10	20	
Turn-Off Delay Time <sup>c</sup>	$t_{d(off)}$			50	100	
Fall Time <sup>c</sup>	$t_f$			20	40	
<b>Source-Drain Diode Ratings and Characteristic (<math>T_C = 25^\circ\text{C}</math>)</b>						
Pulsed Current	$I_{SM}$				100	A
Diode Forward Voltage <sup>b</sup>	$V_{SD}$	$I_F = -45\text{ A}, V_{GS} = 0\text{ V}$		1.0	1.5	V
Source-Drain Reverse Recovery Time	$t_{rr}$	$I_F = -45\text{ A}, di/dt = 100\text{ A}/\mu\text{s}$		55	100	ns

**Notes**

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

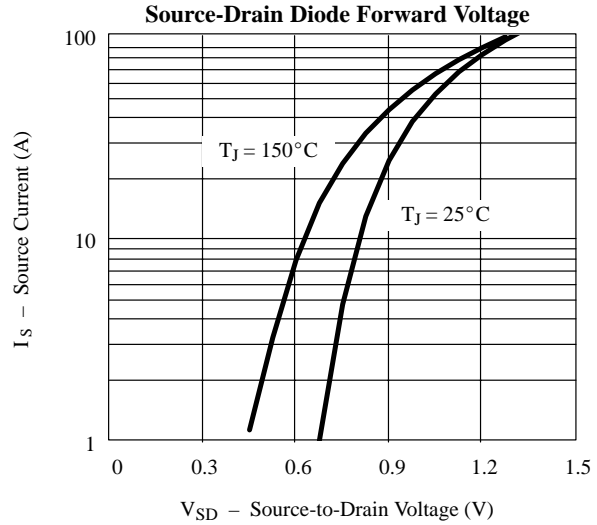
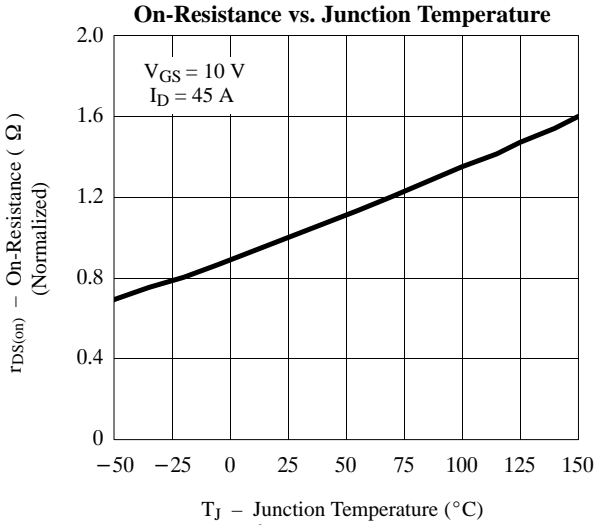


Typical Characteristics (25°C Unless Otherwise Noted)

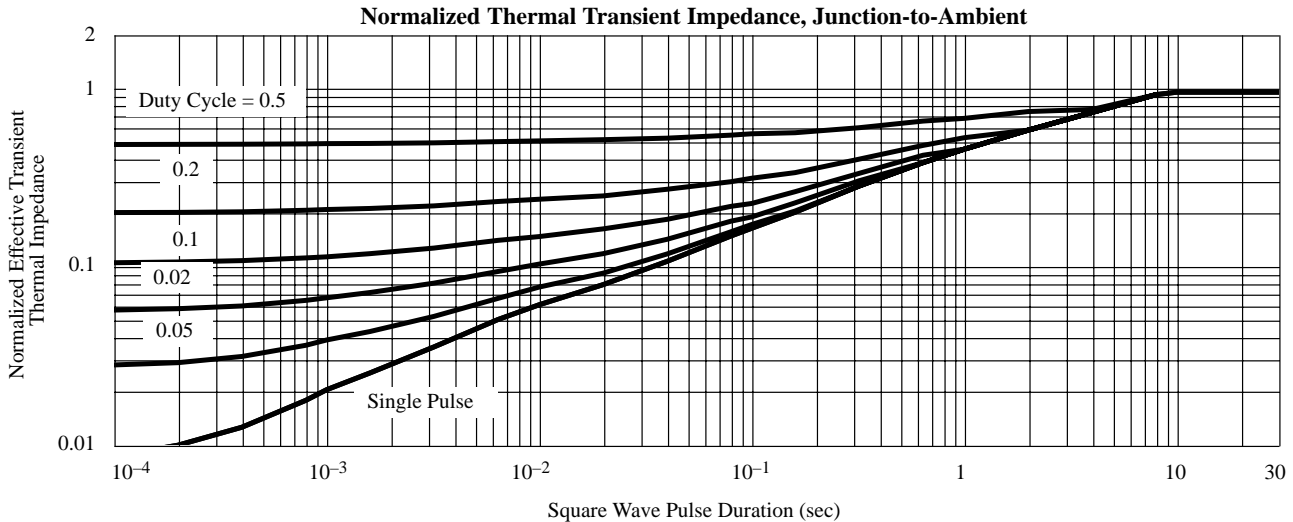
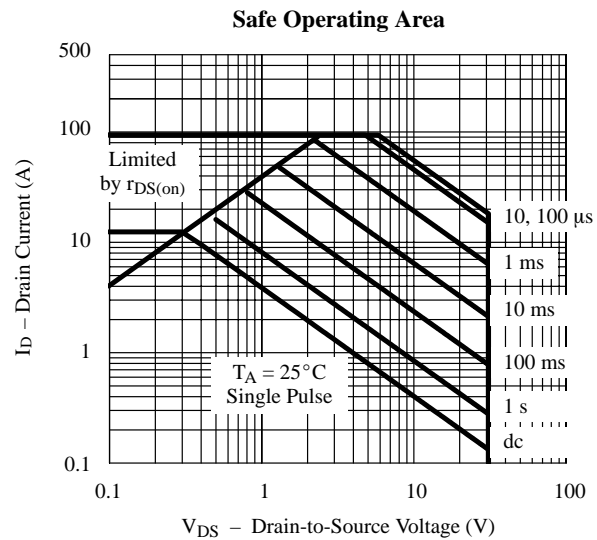
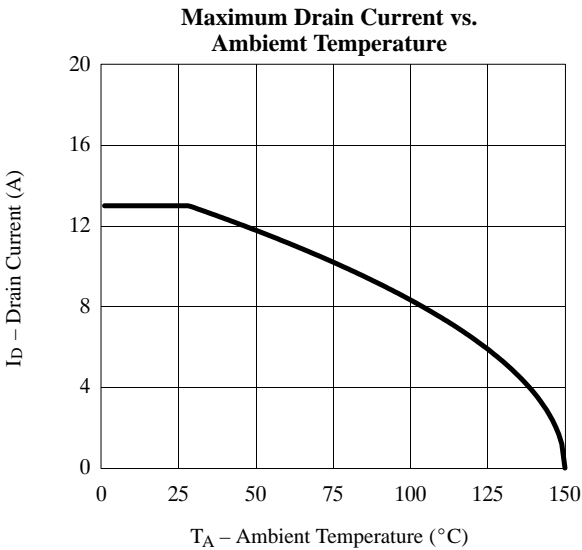




### Typical Characteristics (25°C Unless Otherwise Noted)



### Thermal Ratings





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