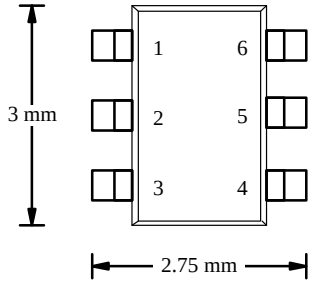
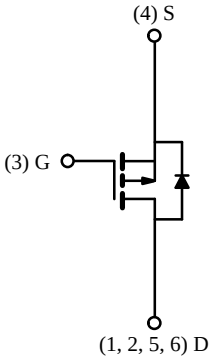
P-Channel Enhancement-Mode MOSFET

Product Summary

V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
–30	0.100 @ V_{GS} = –10 V	± 3.5
	0.190 @ V_{GS} = –4.5 V	± 2.5

TrenchFET™ Power MOSFETs





P-Channel MOSFET

Power Dissipation

Si3455DV—2.0 W

Absolute Maximum Ratings (T_A = 25°C Unless Otherwise Noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	–30	V
Gate-Source Voltage		V_{GS}	± 20	
Continuous Drain Current (T_J = 150°C)[NO TAG]	T_A = 25°C	I_D	± 3.5	A
	T_A = 70°C		± 2.7	
Pulsed Drain Current		I_{DM}	± 20	
Continuous Source Current (Diode Conduction)[NO TAG]		I_S	–1.7	
Maximum Power Dissipation[NO TAG]	T_A = 25°C	P_D	2.0	W
	T_A = 70°C		1.3	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	–55 to 150	°C

Thermal Resistance Ratings

Parameter	Symbol	Limit	Unit
Maximum Junction-to-Ambient[NO TAG]	R_{thJA}	62.5	°C/W

Notes
a. Surface Mounted on FR4 Board, t ≤ 5 sec.

Updates to this data sheet may be obtained via facsimile by calling Siliconix FaxBack, 1-408-970-5600. Please request FaxBack document #1255.

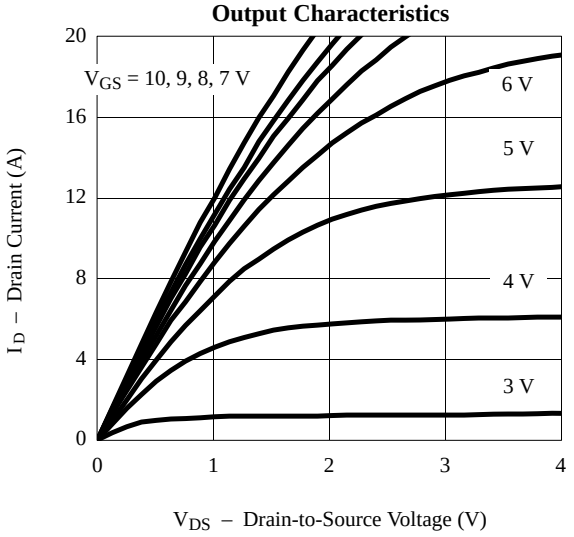
Specifications (T_J = 25°C Unless Otherwise Noted)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 µA	–1.0			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = –30 V, V_{GS} = 0 V			–1	µA
		V_{DS} = –30 V, V_{GS} = 0 V, T_J = 70°C			–5	
On-State Drain Current[NO TAG]	$I_{D(on)}$	V_{DS} = –5 V, V_{GS} = –10 V	–15			A
Drain-Source On-State Resistance[NO TAG]	$r_{DS(on)}$	V_{GS} = –10 V, I_D = 3.5 A		0.080	0.100	Ω
		V_{GS} = –4.5 V, I_D = 2.5 A		0.134	0.190	
Forward Transconductance[NO TAG]	g_{fs}	V_{DS} = –15 V, I_D = –3.5 A		4.0		S
Diode Forward Voltage[NO TAG]	V_{SD}	I_S = –1.7 A, V_{GS} = 0 V			–1.2	V
Dynamic[NO TAG]						
Total Gate Charge	Q_g	V_{DS} = –10 V, V_{GS} = –10 V, I_D = –3.5 A		5.1	10	nC
Gate-Source Charge	Q_{gs}			1.5		
Gate-Drain Charge	Q_{gd}			1.0		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = –10 V, R_L = 10 Ω I_D ≅ –1 A, V_{GEN} = –10 V, R_G = 6 Ω		10	20	ns
Rise Time	t_r			15	30	
Turn-Off Delay Time	$t_{d(off)}$			20	35	
Fall Time	t_f			10	20	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = –1.7 A, di/dt = 100 A/µs		50	80	

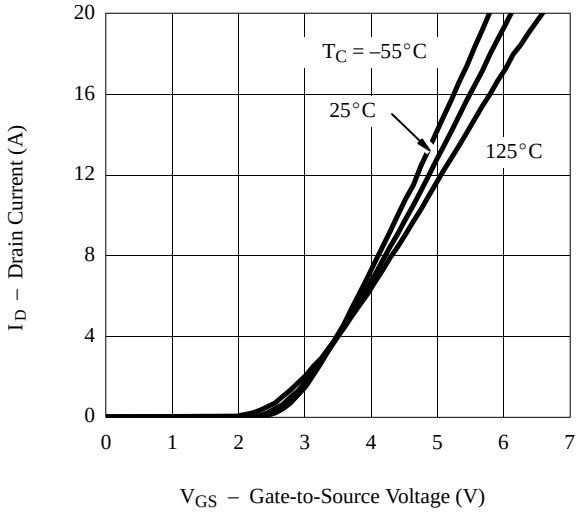
Notes
a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

Typical Characteristics (25°C Unless Otherwise Noted)

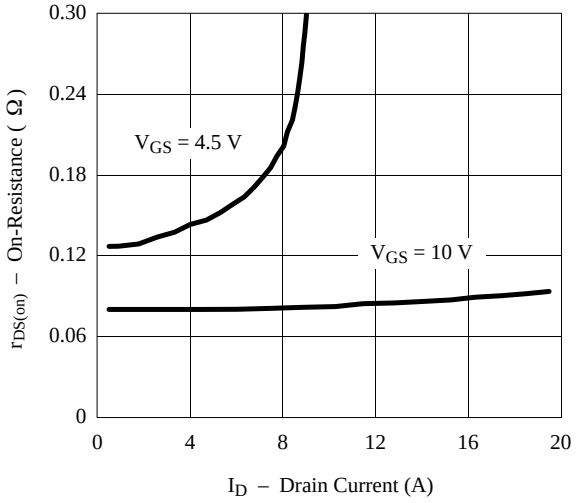
Output Characteristics



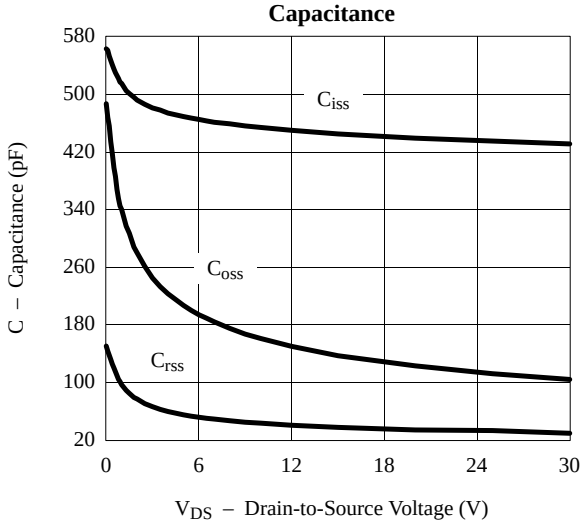
Transfer Characteristics



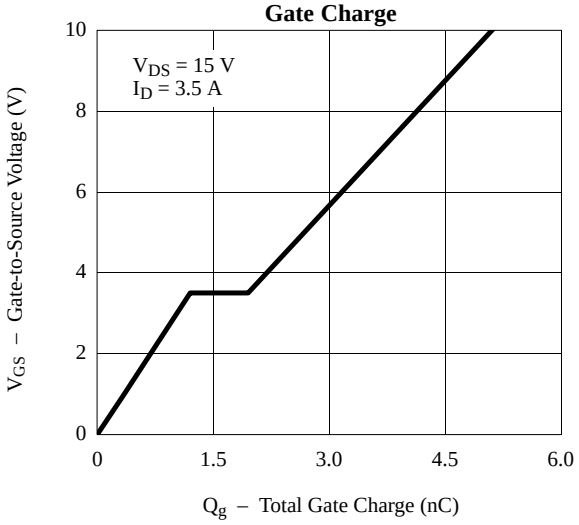
On-Resistance vs. Drain Current



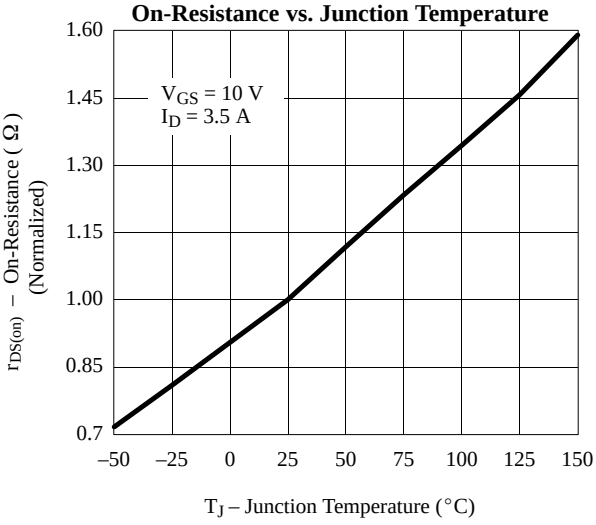
Capacitance



Gate Charge

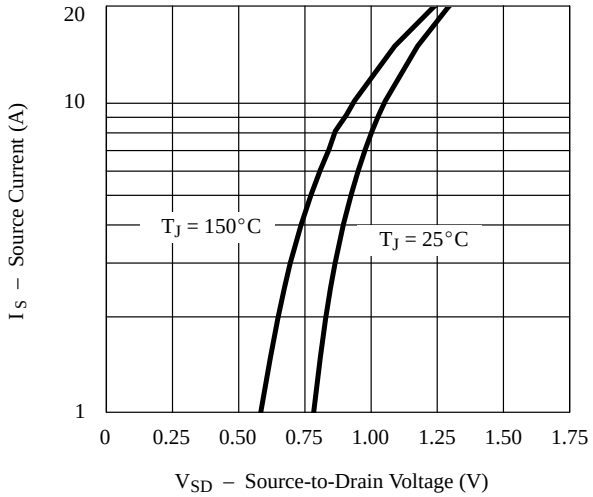


On-Resistance vs. Junction Temperature

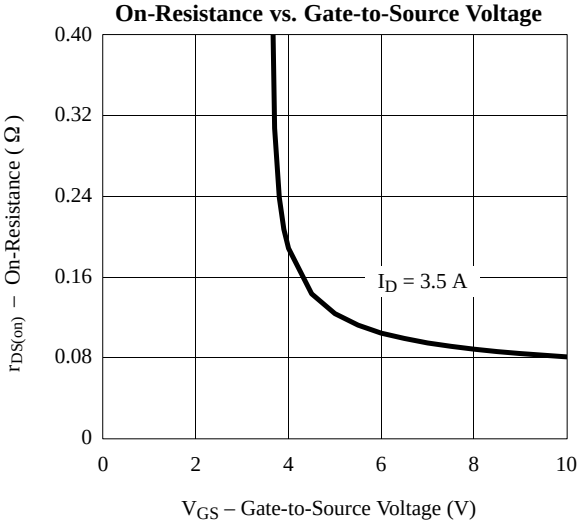


Typical Characteristics (25°C Unless Otherwise Noted)

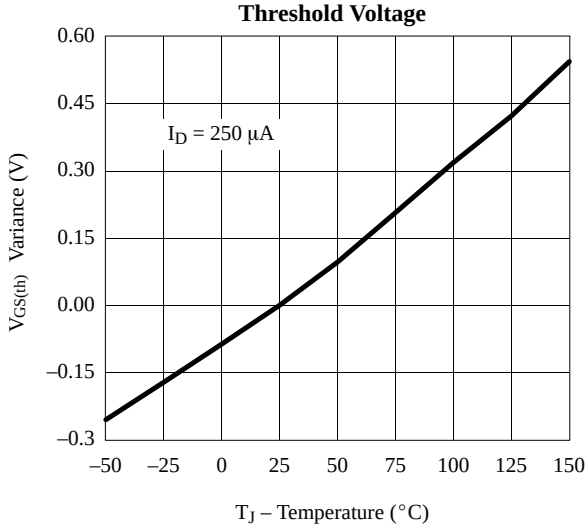
Source-Drain Diode Forward Voltage



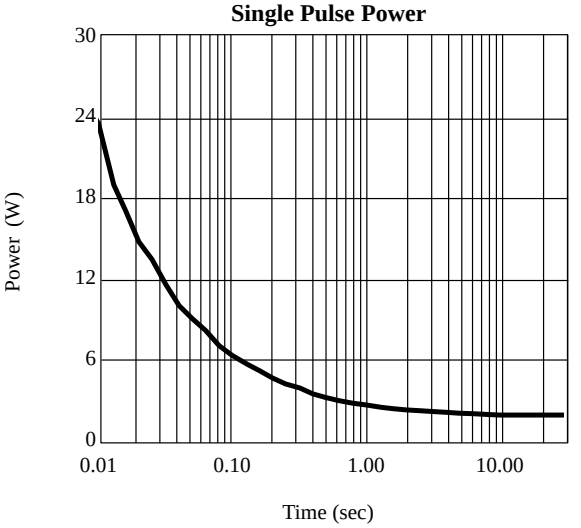
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient