TEMIC
Semiconductors

Si6463DQ

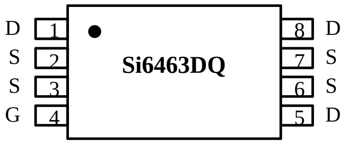
P-Channel, 2.5-V (G-S) Rated MOSFET

Product Summary

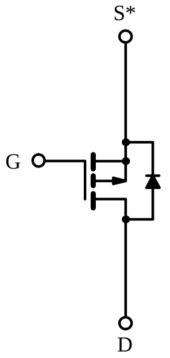
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
–20	0.020 @ V_{GS} = –4.5 V	± 6.5
	0.030 @ V_{GS} = –2.5 V	± 5.2

TrenchFET™ Power MOSFETs
2.5-V Rated

TSSOP-8



Top View



*Source Pins 2, 3, 6 and 7 must be tied common.

P-Channel MOSFET

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

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	–20	V
Gate-Source Voltage		V_{GS}	± 12	
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	± 6.5	A
	T_A = 70°C		± 5.2	
Pulsed Drain Current		I_{DM}	± 30	
Continuous Source Current (Diode Conduction)[a]		I_S	–1.5	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	1.5	W
	T_A = 70°C		1.0	
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[a]	R_{thJA}	83	°C/W

Notes
a. 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 #70660.

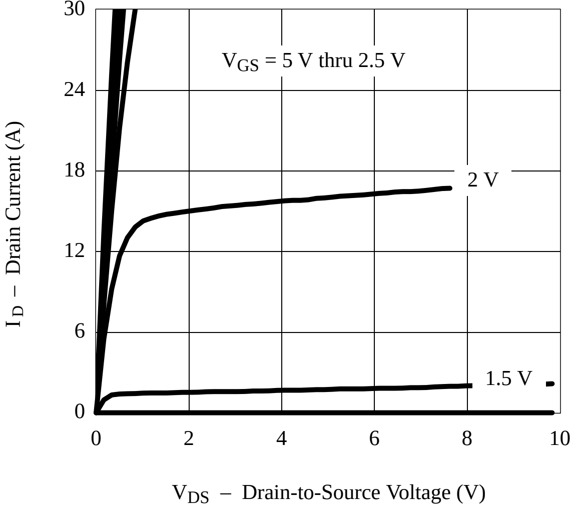
New Product

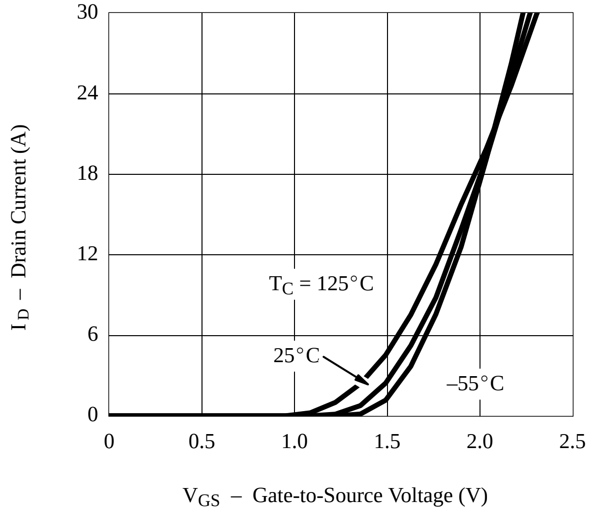
Specifications (T_J = 25°C Unless Otherwise Noted)

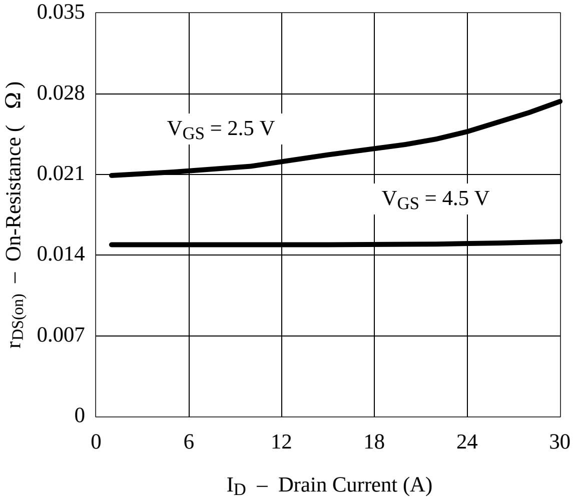
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = –250 µA	–0.6			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ± 12 V			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = –20 V, V_{GS} = 0 V			–1	µA
		V_{DS} = –20 V, V_{GS} = 0 V, T_J = 70°C			–25	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} = –5 V, V_{GS} = –10 V	–20			A
		V_{DS} = –5 V, V_{GS} = –4.5 V	–10			
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = –4.5 V, I_D = –6.5 A		0.015	0.020	Ω
		V_{GS} = –2.5 V, I_D = –5.2 A		0.022	0.030	
Forward Transconductance[a]	g_{fs}	V_{DS} = –10 V, I_D = –6.5 A		26		S
Diode Forward Voltage[a]	V_{SD}	I_S = –1.5 A, V_{GS} = 0 V		0.65	–1.1	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = –10 V, V_{GS} = –4.5 V, I_D = –6.5 A		33	60	nC
Gate-Source Charge	Q_{gs}			7.5		
Gate-Drain Charge	Q_{gd}			7.5		
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = –10 V, R_L = 10 Ω I_D ≅ –1 A, V_{GEN} = –4.5 V, R_G = 6 Ω		24	50	ns
Rise Time	t_r			26	50	
Turn-Off Delay Time	$t_{d(off)}$			120	200	
Fall Time	t_f			65	110	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = –1.5 A, di/dt = 100 A/µs		40	60	

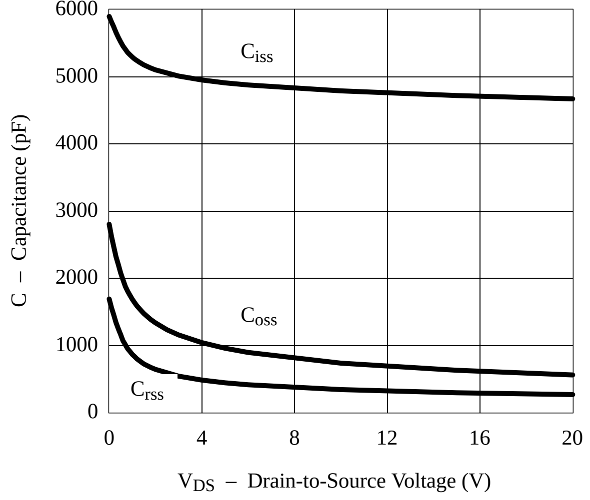
Notes
a. Pulse test; pulse width ≤ 300 µs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

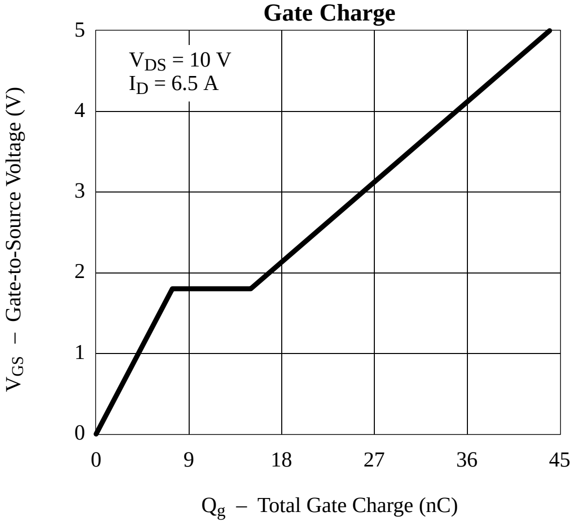
Typical Characteristics (25°C Unless Otherwise Noted)

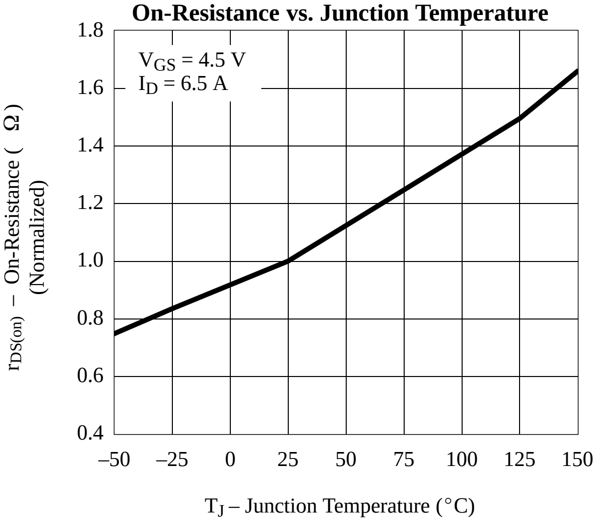

Output Characteristics


Transfer Characteristics


On-Resistance vs. Drain Current

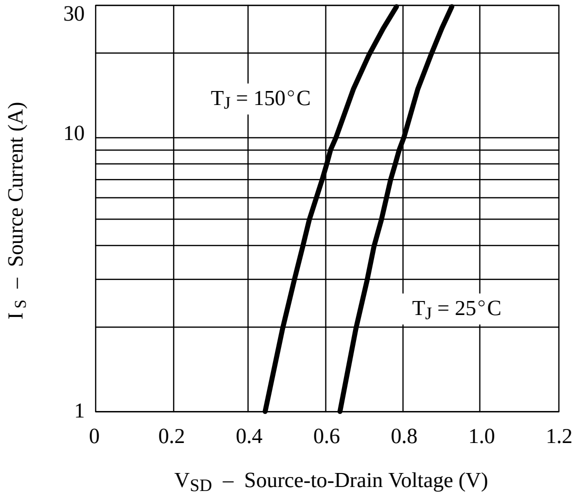

Capacitance


Gate Charge

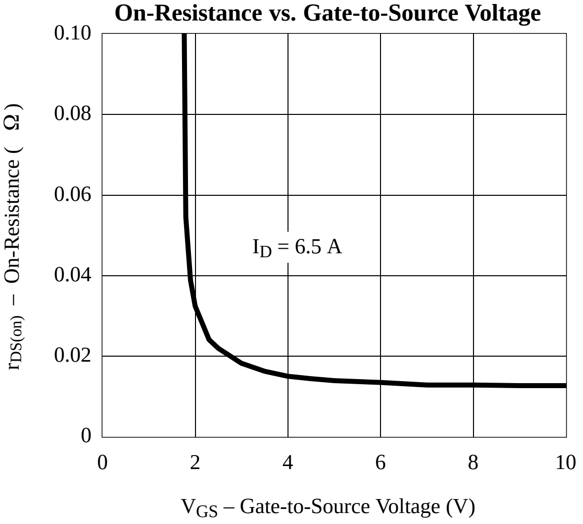

On-Resistance vs. Junction Temperature

Typical Characteristics (25°C Unless Otherwise Noted)

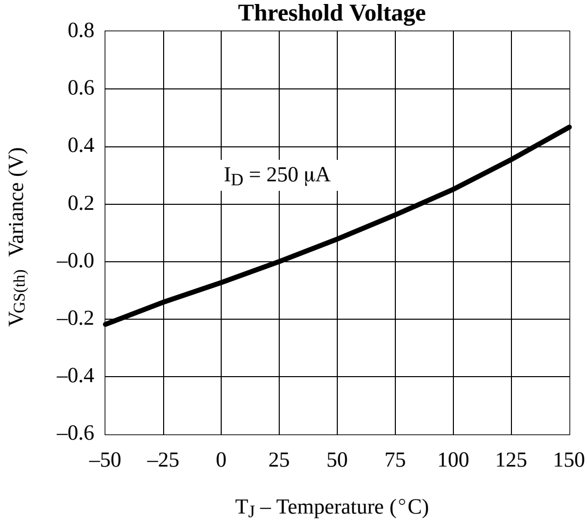
Source-Drain Diode Forward Voltage



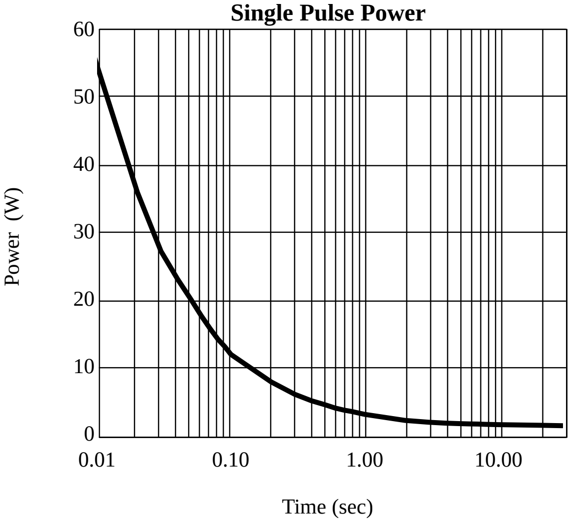
On-Resistance vs. Gate-to-Source Voltage



Threshold Voltage



Single Pulse Power



Normalized Thermal Transient Impedance, Junction-to-Ambient