P-Channel 14-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
−14	0.011 @ V_{GS} = −4.5 V	−13
	0.018 @ V_{GS} = −2.5 V	−10

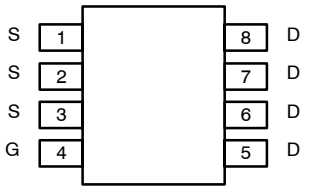
FEATURES

- TrenchFET® Power MOSFET
- 100% R_g Tested

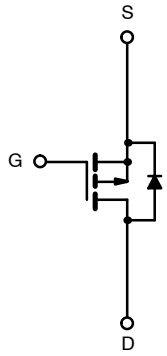
APPLICATION

- Battery Switch for Portable Devices

SO-8



Top View



P-Channel MOSFET

Ordering Information: Si4473BDY—E3 (ILead Free)
Si4473BDY-T1—E3 (Lead Free with Tape and Reel)

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 secs	Steady State	Unit
Drain-Source Voltage		V_{DS}	−14		V
Gate-Source Voltage		V_{GS}	±12		
Continuous Drain Current (T_J = 150°C)[a]	T_A = 25°C	I_D	−13	−9.8	A
	T_A = 70°C		−9.9	−7.8	
Pulsed Drain Current		I_{DM}	−50		
continuous Source Current (Diode Conduction)[a]		I_S	−2.3	−1.34	
Maximum Power Dissipation[a]	T_A = 25°C	P_D	2.5	1.5	W
	T_A = 70°C		1.6	0.94	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	−55 to 150		°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient[a]	t ≤ 10 sec	R_{thJA}	40	50	°C/W
	Steady State		70	85	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	15	18	

Notes
a. Surface Mounted on 1" x 1" FR4 Board.

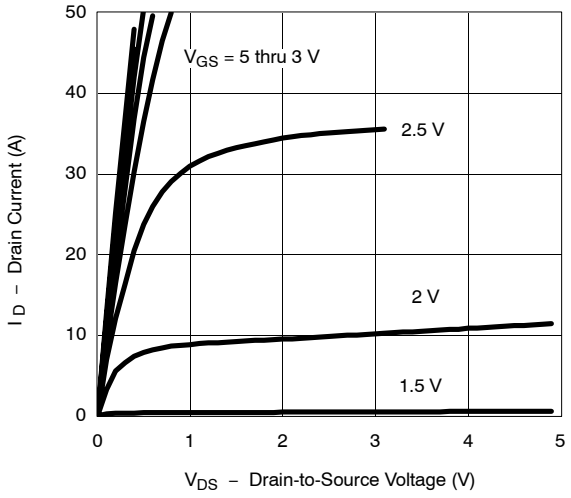
SPECIFICATIONS (T_J = 25°C UNLESS OTHERWISE NOTED)

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		–1.4	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} = –14 V, V_{GS} = 0 V			–1	μA
		V_{DS} = –14 V, V_{GS} = 0 V, T_J = 70°C			–10	
On-State Drain Current[a]	$I_{D(on)}$	V_{DS} = –5 V, V_{GS} = –4.5 V	–30			A
Drain-Source On-State Resistance[a]	$r_{DS(on)}$	V_{GS} = –4.5 V, I_D = –13 A		0.009	0.011	Ω
		V_{GS} = –2.5 V, I_D = –2.5 A		0.014	0.018	
Forward Transconductance[a]	g_{fs}	V_{DS} = –17 V, I_D = –13 A		45		S
Diode Forward Voltage[a]	V_{SD}	I_S = –2.3 A, V_{GS} = 0 V		–0.7	–1.1	V
Dynamic[b]						
Total Gate Charge	Q_g	V_{DS} = –10 V, V_{GS} = –4.5 V, I_D = –13 A		53	80	nC
Gate-Source Charge	Q_{gs}			11		
Gate-Drain Charge	Q_{gd}			22		
Gate Resistance	R_g	f = 1 MHz	1.5	2.7	4.5	Ω
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = –15 V, R_L = 10 Ω I_D ≅ –1 A, V_{GEN} = –4.5 V, R_G = 6 Ω		55	85	ns
Rise Time	t_r			95	145	
Turn-Off Delay Time	$t_{d(off)}$			140	210	
Fall Time	t_f			140	210	
Source-Drain Reverse Recovery Time	t_{rr}	I_F = –2.3 A, di/dt = 100 A/μs		81	120	

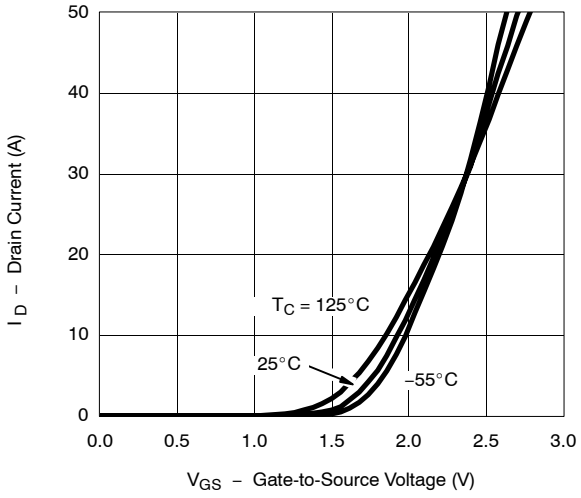
Notes
a. Pulse test; pulse width ≤ 300 μs, duty cycle ≤ 2%.
b. Guaranteed by design, not subject to production testing.

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Output Characteristics

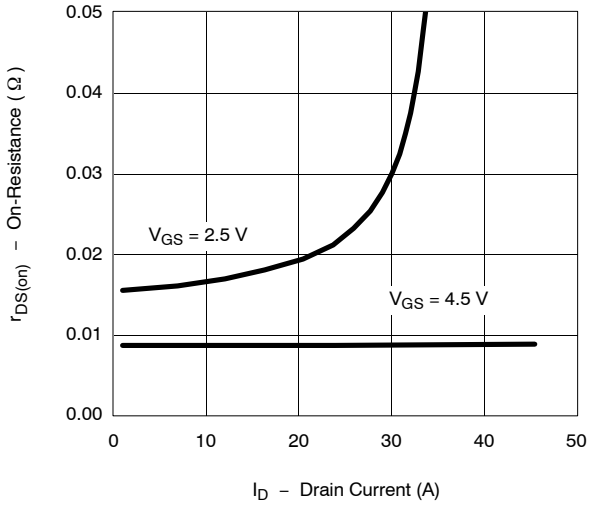


Transfer Characteristics

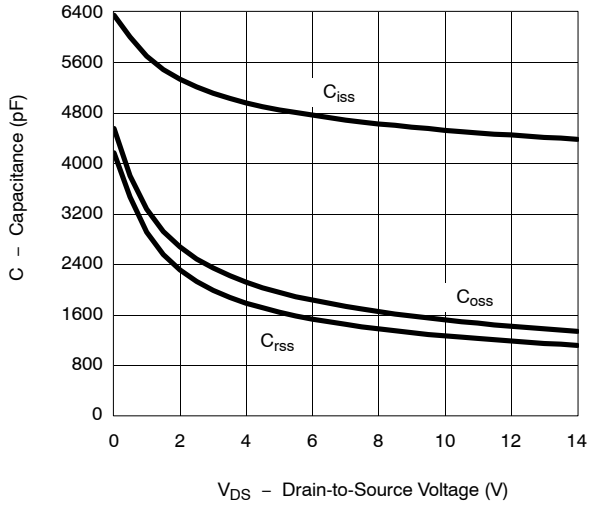


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

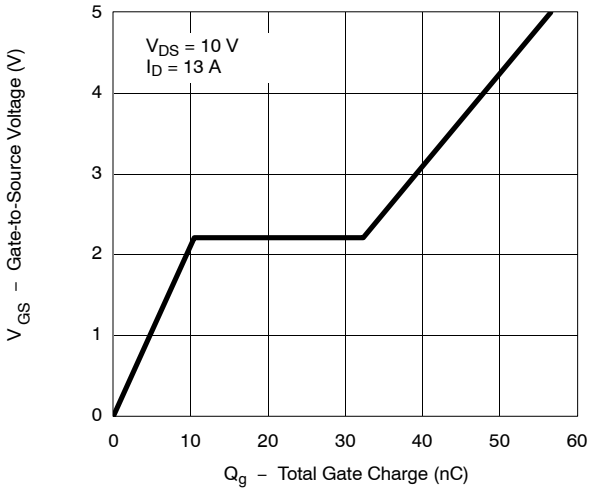
On-Resistance vs. Drain Current



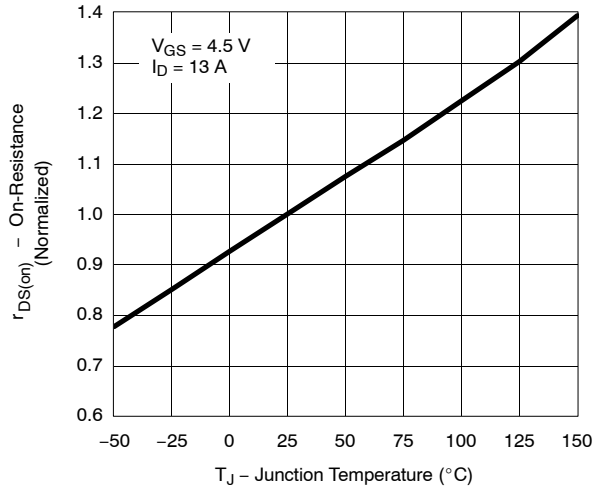
Capacitance



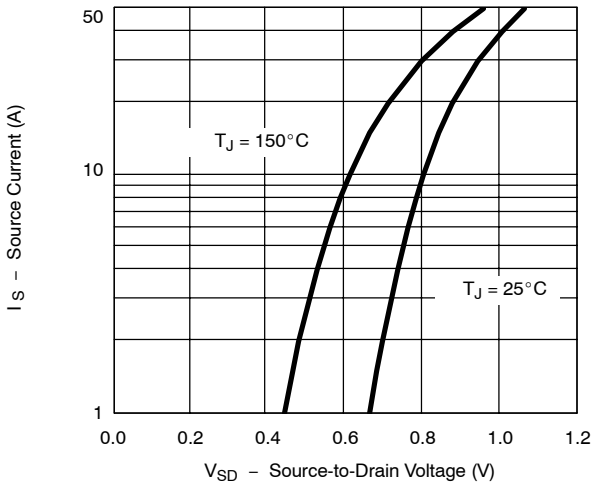
Gate Charge



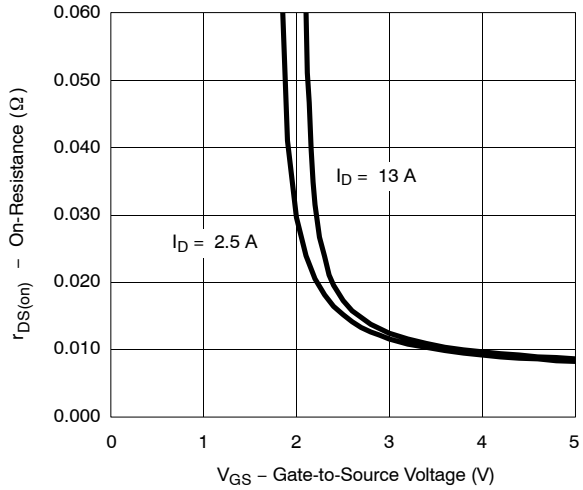
On-Resistance vs. Junction Temperature



Source-Drain Diode Forward Voltage

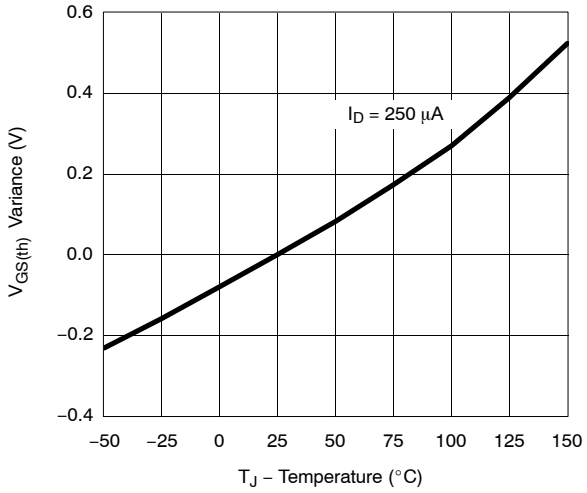


On-Resistance vs. Gate-to-Source Voltage

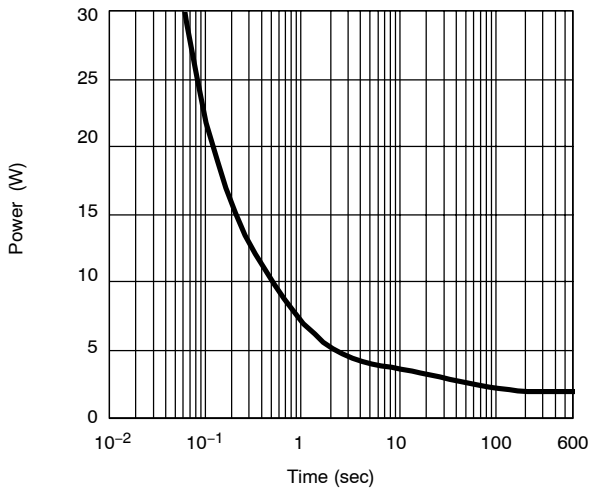


TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

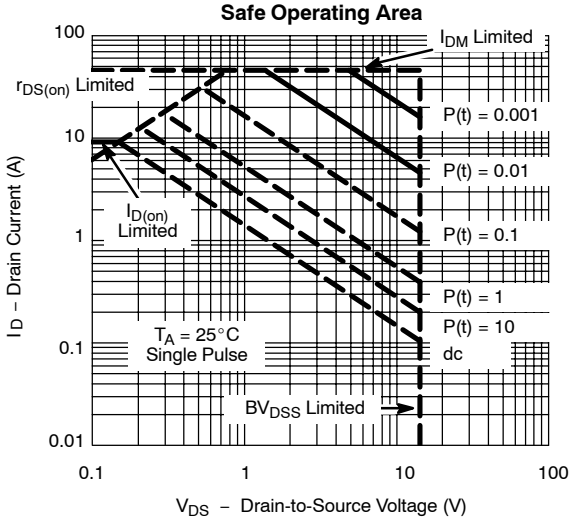
Threshold Voltage



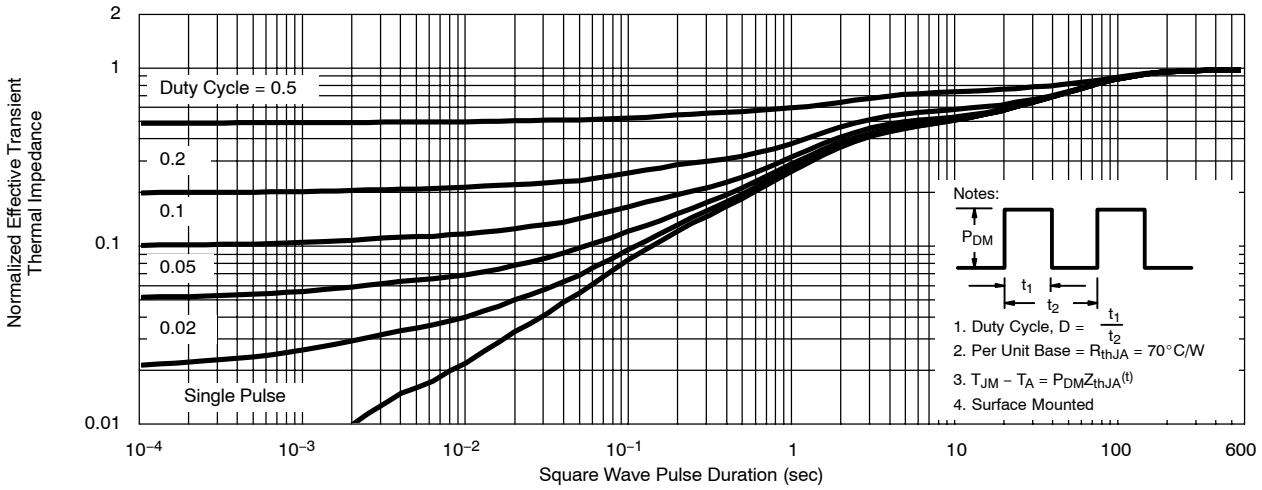
Single Pulse Power, Junction-to-Ambient



Safe Operating Area



Normalized Thermal Transient Impedance, Junction-to-Ambient



TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Normalized Thermal Transient Impedance, Junction-to-Foot