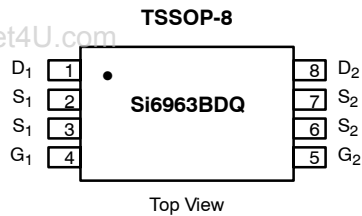


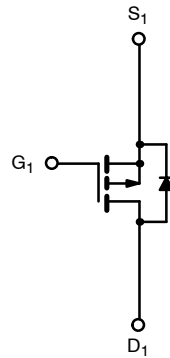


Dual P-Channel 2.5-V (G-S) MOSFET

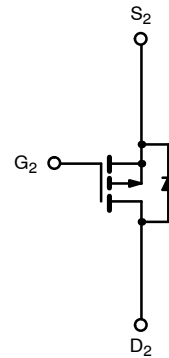
PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-20	0.045 @ $V_{GS} = -4.5$ V	-3.9
	0.080 @ $V_{GS} = -2.5$ V	-3.0



Ordering Information: Si6963BDQ-T1—E3



P-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T _A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		Symbol	10 sec	Steady State	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	-3.9	-3.4	A
	T _A = 70°C		-3.1	-2.7	
Pulsed Drain Current		I _{DM}	-30		
Continuous Source Current (Diode Conduction) ^a		I _S	-1.0	-0.75	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	1.13	0.83	W
	T _A = 70°C		0.73	0.53	
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	$t \leq 10$ sec	R_{thJA}	90	110	$^\circ\text{C/W}$
	Steady State		125	150	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	67	80	

Notes

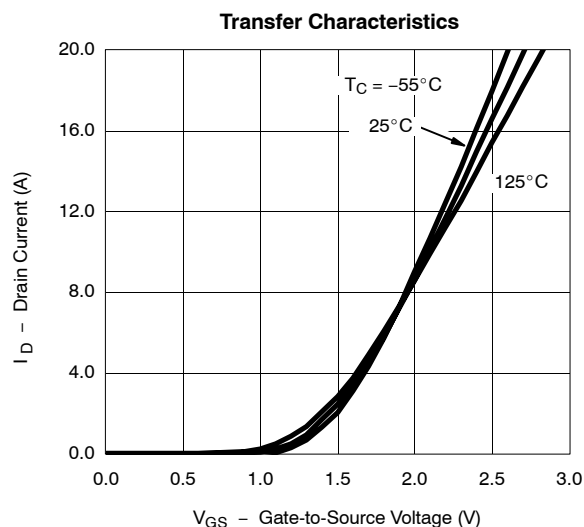
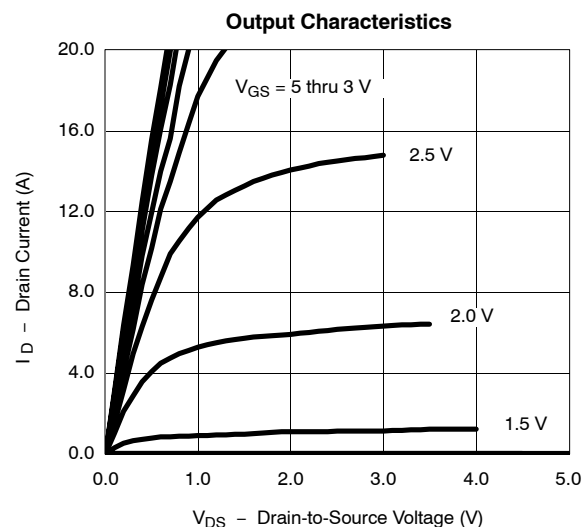
a. Surface Mounted on FR4 Board.

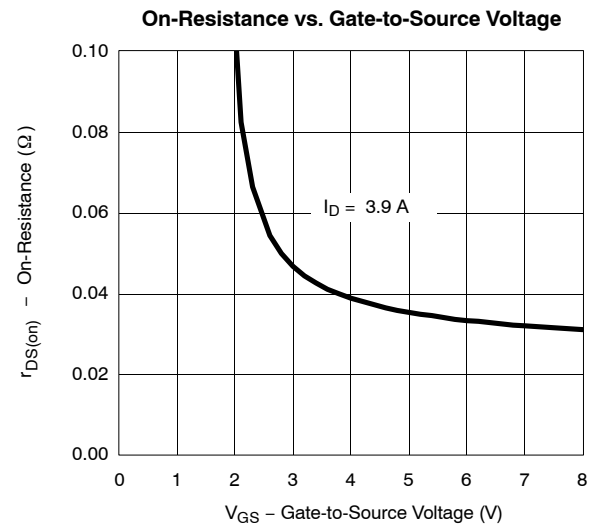
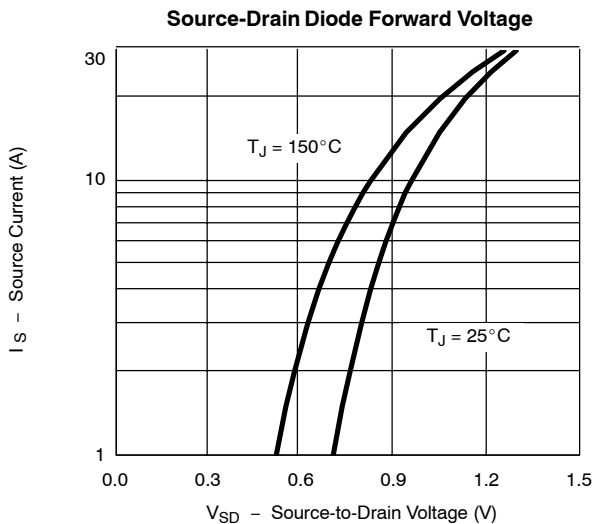
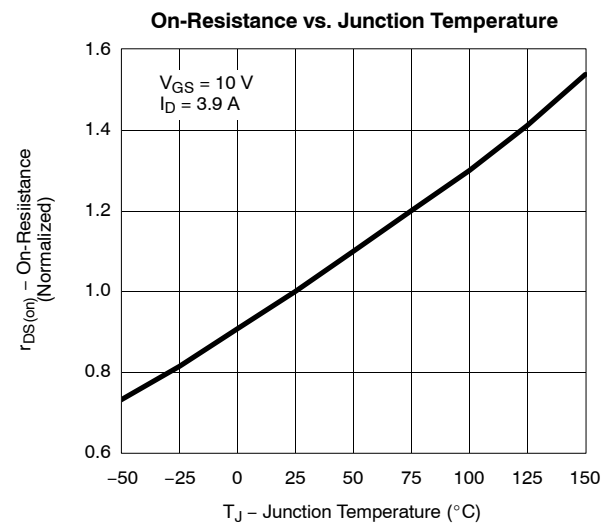
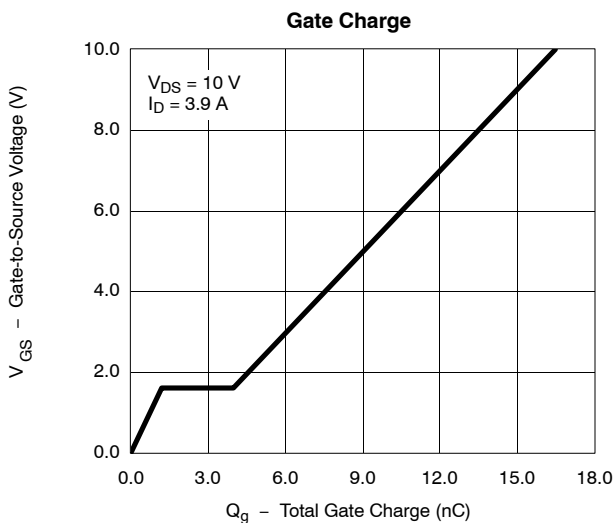
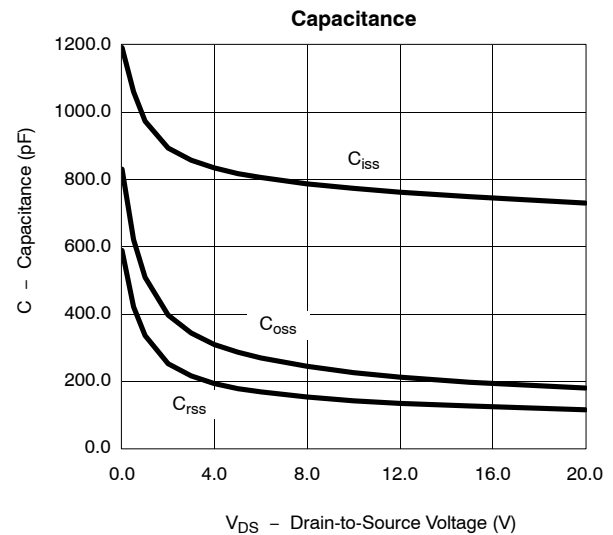
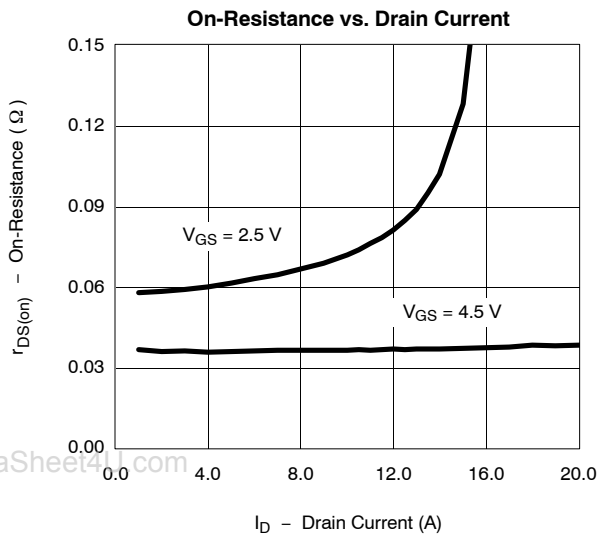
SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$	-0.6		-1.4	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 12\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -20\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -20\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 55^\circ\text{C}$			-10	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \geq -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	-20			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}$, $I_D = -3.9\ \text{A}$		0.036	0.045	Ω
		$V_{GS} = -2.5\ \text{V}$, $I_D = -3.0\ \text{A}$		0.065	0.080	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -10\ \text{V}$, $I_D = -3.9\ \text{A}$		10		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.0\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.71	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -10\ \text{V}$, $V_{GS} = -4.5\ \text{V}$, $I_D = -3.9\ \text{A}$		8.6	11	nC
Gate-Source Charge	Q_{gs}			1.2		
Gate-Drain Charge	Q_{gd}			2.8		
Gate Resistance	R_g			7.0		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -10\ \text{V}$, $R_L = 10\ \Omega$ $I_D \cong -1\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_g = 6\ \Omega$		33	50	ns
Rise Time	t_r			57	90	
Turn-Off Delay Time	$t_{d(off)}$			65	100	
Fall Time	t_f			40	60	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.0\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		30	50	

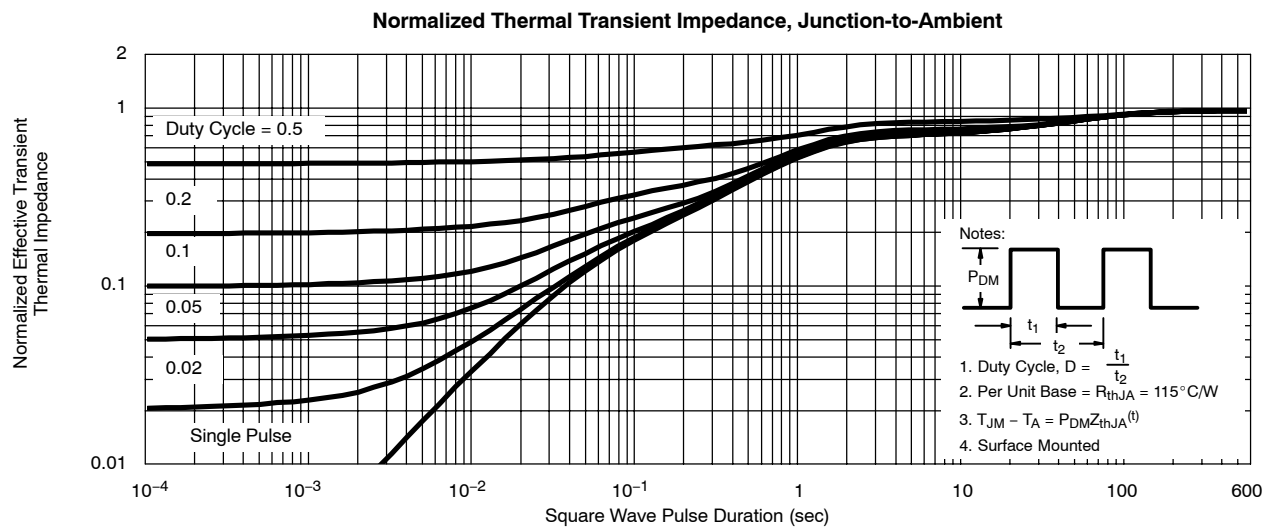
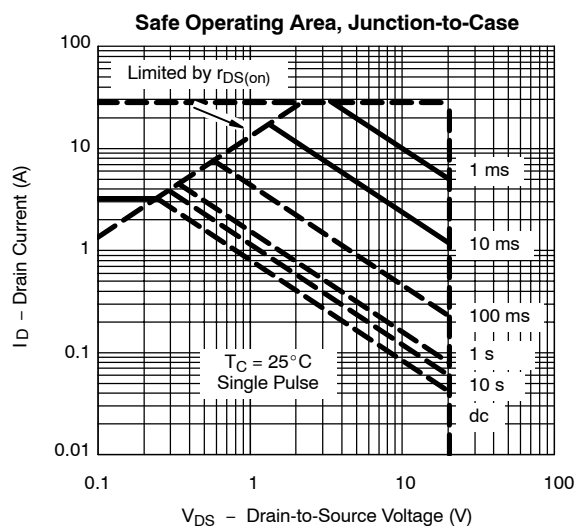
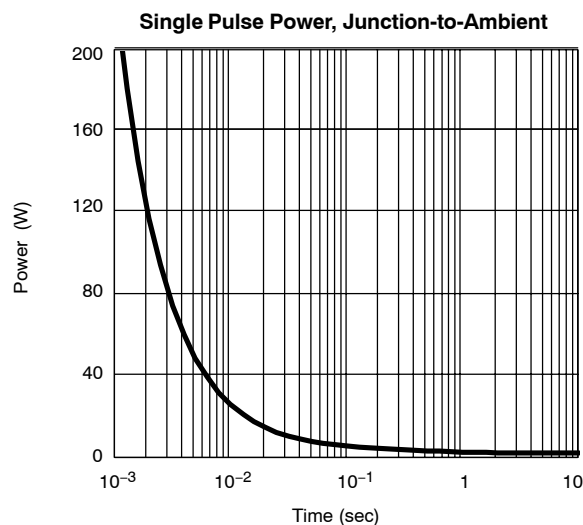
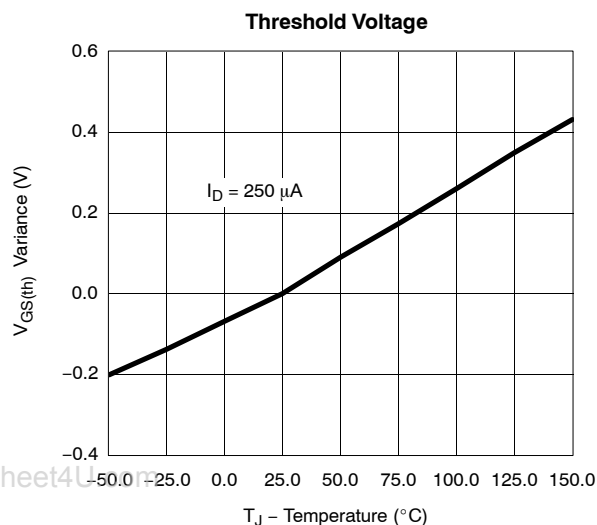
Notes

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

TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

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

TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)





TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

Normalized Thermal Transient Impedance, Junction-to-Foot

