

Dual P-Channel 12-V (D-S) MOSFET

PRODUCT SUMMARY

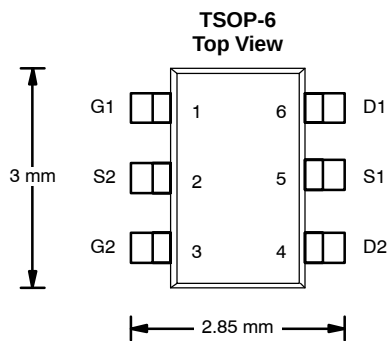
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
-12	0.087 @ $V_{GS} = -4.5$ V	-2.7
	0.120 @ $V_{GS} = -2.5$ V	-2.3
	0.165 @ $V_{GS} = -1.8$ V	-1.5

FEATURES

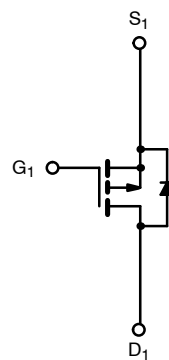
- TrenchFET® Power MOSFET

APPLICATIONS

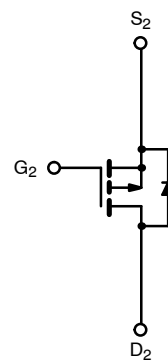
- Portable
 - PA Switch
 - Load Switch



Ordering Information: Si3973DV-T1—E3
Marking Code: MBxxx



P-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)

Parameter		Symbol	5 secs	Steady State	Unit
Drain-Source Voltage		V _{DS}	−12		V
Gate-Source Voltage		V _{GS}	± 8		
Continuous Drain Current (T _J = 150°C) ^a	T _A = 25°C	I _D	−2.7	−2.4	A
	T _A = 70°C		−2.2	−1.9	
Pulsed Drain Current		I _{DM}	−7		
Continuous Source Current (Diode Conduction) ^a		I _S	−1.05	−0.75	
Maximum Power Dissipation ^a	T _A = 25°C	P _D	1.15	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	$t \leq 5$ sec	R_{thJA}	93	110	$^\circ\text{C/W}$
	Steady State		130	150	
Maximum Junction-to-Foot (Drain)	Steady State	R_{thJF}	75	90	

Notes

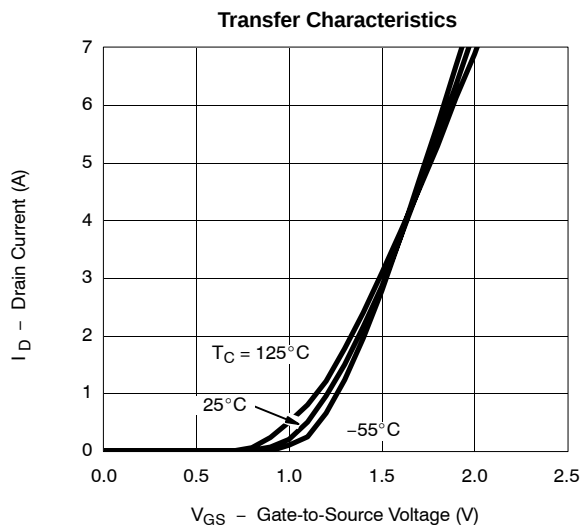
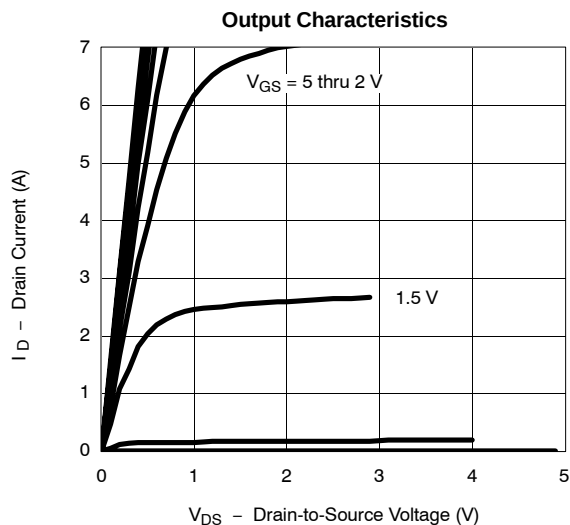
a. Surface Mounted on 1" x 1" FR4 Board.

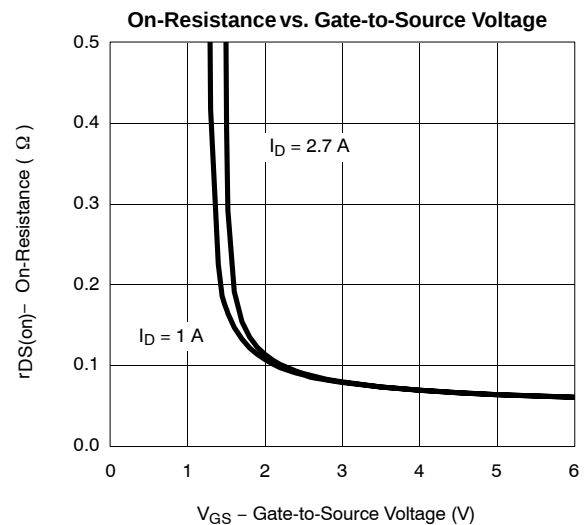
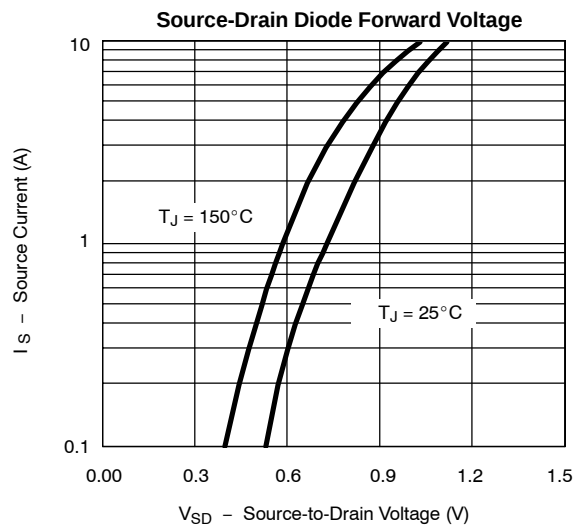
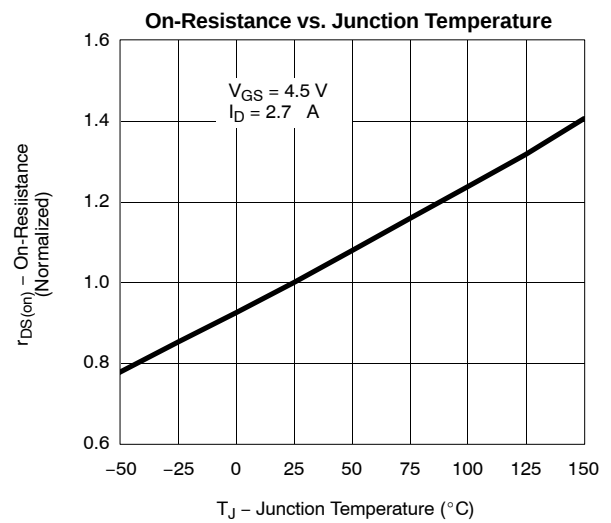
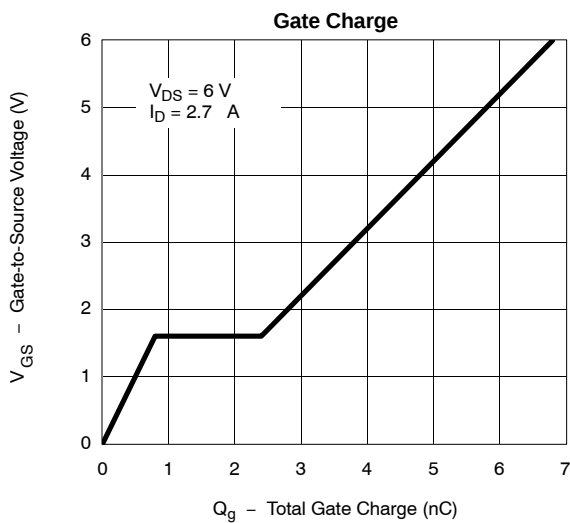
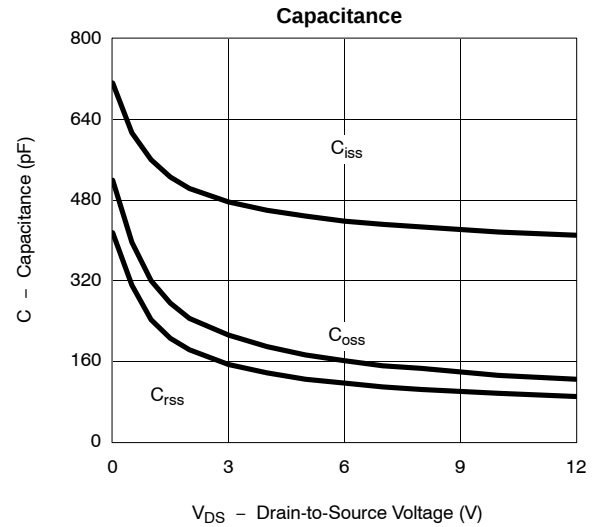
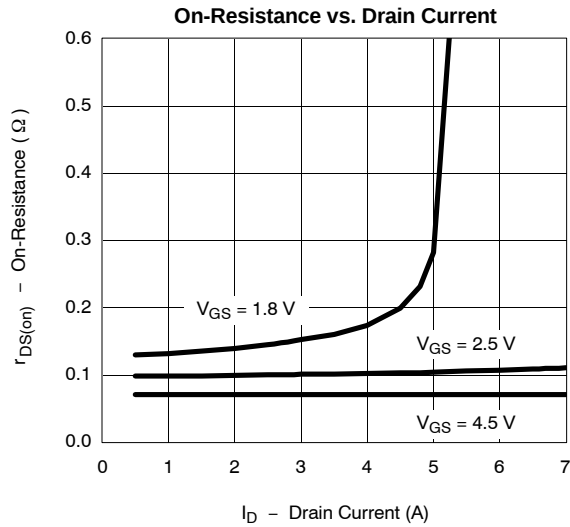
**SPECIFICATIONS ($T_J = 25^\circ\text{C}$ UNLESS OTHERWISE NOTED)**

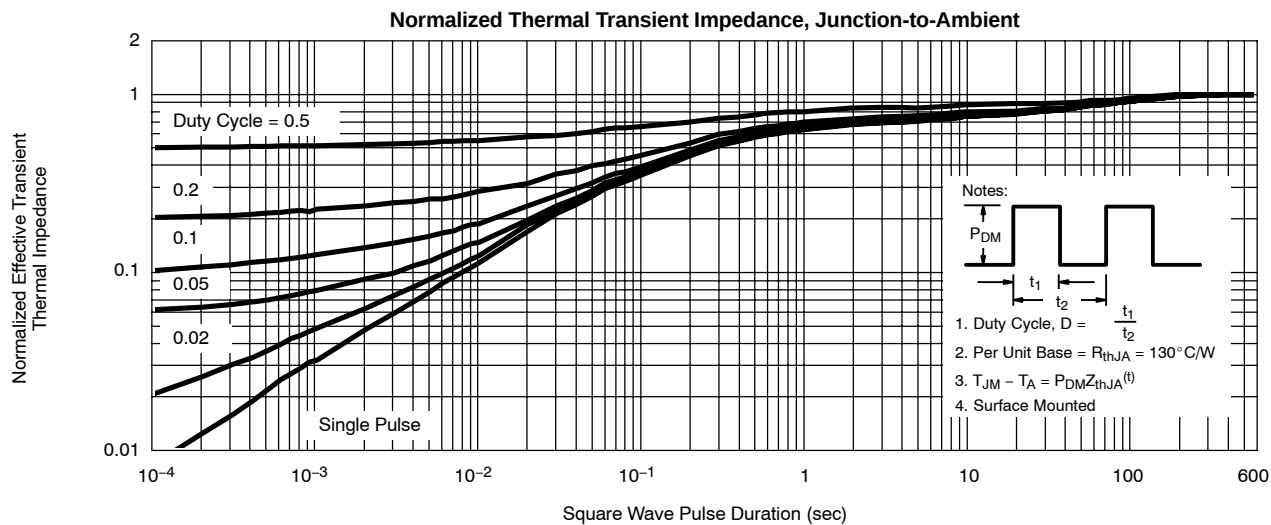
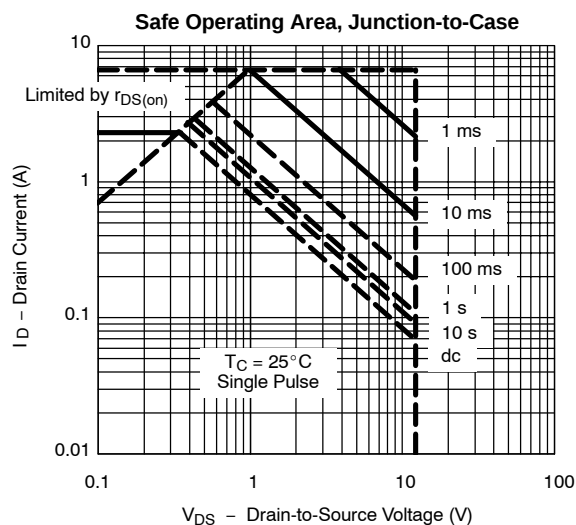
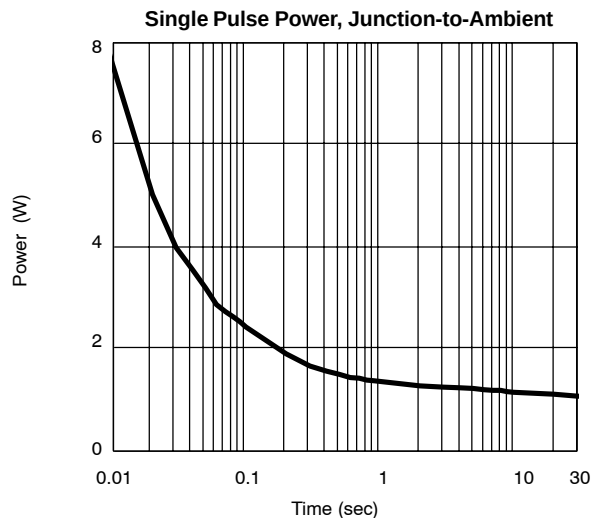
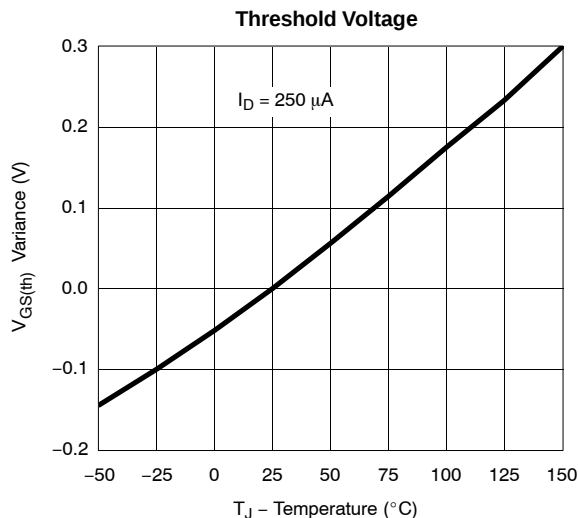
Parameter	Symbol	Test Condition	Min	Typ	Max	Unit
Static						
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\ \mu\text{A}$	-0.40		-0.9	V
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\ \text{V}$, $V_{GS} = \pm 8\ \text{V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -12\ \text{V}$, $V_{GS} = 0\ \text{V}$			-1	μA
		$V_{DS} = -12\ \text{V}$, $V_{GS} = 0\ \text{V}$, $T_J = 55^\circ\text{C}$			-5	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} \leq -5\ \text{V}$, $V_{GS} = -4.5\ \text{V}$	-5			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -4.5\ \text{V}$, $I_D = -2.7\ \text{A}$		0.070	0.087	Ω
		$V_{GS} = -2.5\ \text{V}$, $I_D = -2.3\ \text{A}$		0.096	0.120	
		$V_{GS} = -1.8\ \text{V}$, $I_D = -1\ \text{A}$		0.130	0.165	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -4.5\ \text{V}$, $I_D = -2.7\ \text{A}$		7		S
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.05\ \text{A}$, $V_{GS} = 0\ \text{V}$		-0.75	-1.1	V
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -6\ \text{V}$, $V_{GS} = -4.5\ \text{V}$, $I_D = -2.7\ \text{A}$		5.5	8.5	nC
Gate-Source Charge	Q_{gs}			0.8		
Gate-Drain Charge	Q_{gd}			1.6		
Gate Resistance	R_g			7.6		Ω
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -6\ \text{V}$, $R_L = 6\ \Omega$ $I_D \approx -1\ \text{A}$, $V_{GEN} = -4.5\ \text{V}$, $R_g = 6\ \Omega$		30	45	ns
Rise Time	t_r			60	90	
Turn-Off Delay Time	$t_{d(off)}$			55	85	
Fall Time	t_f			45	70	
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.05\ \text{A}$, $di/dt = 100\ \text{A}/\mu\text{s}$		27	45	

Notes

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

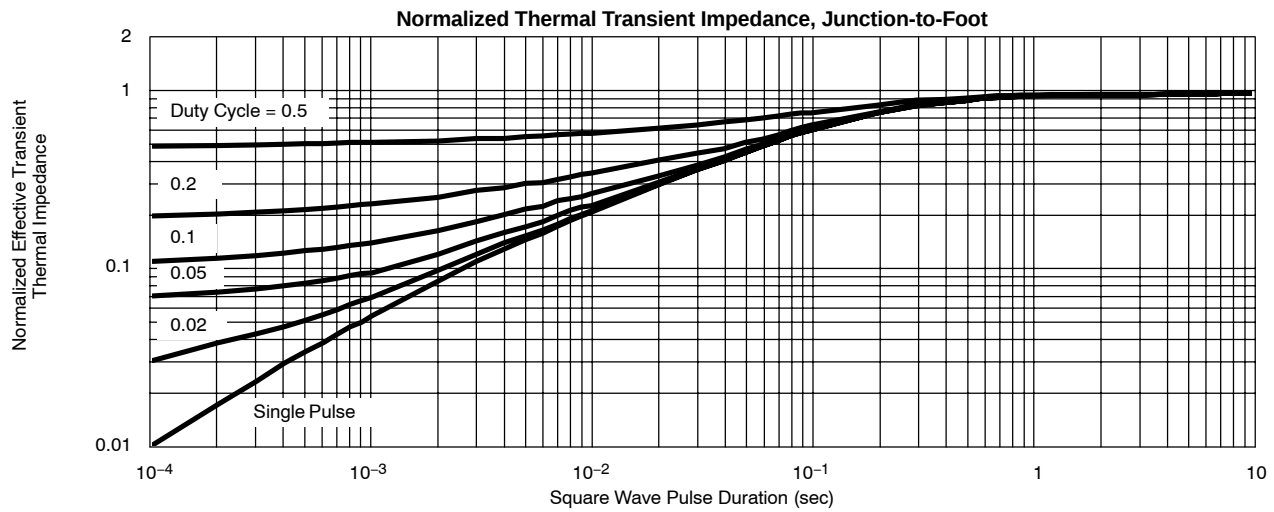
TYPICAL CHARACTERISTICS (25°C UNLESS NOTED)

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

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



TYPICAL CHARACTERISTICS (25 °C UNLESS NOTED)



Copyright © Each Manufacturing Company.

All Datasheets cannot be modified without permission.

This datasheet has been download from :

www.AllDataSheet.com

100% Free DataSheet Search Site.

Free Download.

No Register.

Fast Search System.

www.AllDataSheet.com