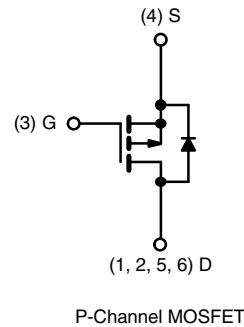
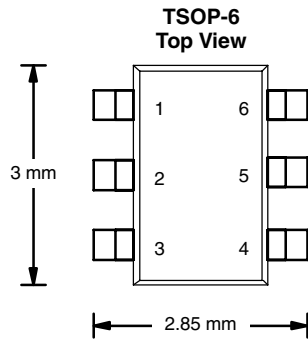


P-Channel 60-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (Ω)	I_D (A)
- 60	0.220 at $V_{GS} = - 10$ V	± 2.2
	0.310 at $V_{GS} = - 4.5$ V	± 1.9

FEATURES

- TrenchFET® Power MOSFET



Ordering Information: Si3459DV-T1
Si3459DV-T1-E3 (Lead (Pb)-free)

ABSOLUTE MAXIMUM RATINGS $T_A = 25$ °C, unless otherwise noted			
Parameter	Symbol	Limit	Unit
Drain-Source Voltage	V_{DS}	- 60	V
Gate-Source Voltage	V_{GS}	± 20	
Continuous Drain Current ($T_J = 150$ °C) ^{a, b}	I_D	$T_C = 25$ °C	± 2.2
		$T_C = 70$ °C	± 1.7
Pulsed Drain Current	I_{DM}	± 10	A
Single Avalanche Current ($L = 0.1$ mH)	I_{AS}	- 7	
Maximum Power Dissipation ^b	P_D	$T_A = 25$ °C	2
		$T_A = 70$ °C	1.3
Operating Junction and Storage Temperature Range	T_J, T_{stg}	- 55 to 150	°C

THERMAL RESISTANCE RATINGS					
Parameter		Symbol	Typical	Maximum	Unit
Maximum Junction-to-Ambient ^a	$t \leq 5$ sec	R_{thJA}		62.5	°C/W
	Gate Steady		106		
Maximum Junction-to-Lead	Gate Steady	R_{thJL}	35		

Notes:

a. Surface Mounted on FR4 Board.

b. $t \leq 5$ sec.

*Pb containing terminations are not RoHS compliant, exemptions may apply

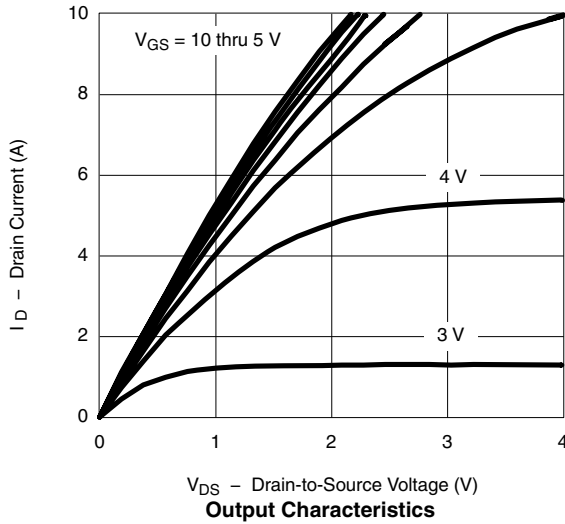
SPECIFICATIONS $T_J = 25\text{ }^\circ\text{C}$, unless otherwise noted						
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0\text{ V}$, $I_D = -250\text{ }\mu\text{A}$	- 60			V
Gate-Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = -250\text{ }\mu\text{A}$	- 1			
Gate-Body Leakage	I_{GSS}	$V_{DS} = 0\text{ V}$, $V_{GS} = \pm 20\text{ V}$			± 100	nA
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = -60\text{ V}$, $V_{GS} = 0\text{ V}$			- 1	μA
		$V_{DS} = -60\text{ V}$, $V_{GS} = 0\text{ V}$, $T_J = 150\text{ }^\circ\text{C}$			- 50	
On-State Drain Current ^a	$I_{D(on)}$	$V_{DS} = -5\text{ V}$, $V_{GS} = -10\text{ V}$	- 10			A
Drain-Source On-State Resistance ^a	$r_{DS(on)}$	$V_{GS} = -10\text{ V}$, $I_D = -2.2\text{ A}$		0.190	0.220	Ω
		$V_{GS} = -4.5\text{ V}$, $I_D = -1.9\text{ A}$		0.265	0.310	
Forward Transconductance ^a	g_{fs}	$V_{DS} = -4.5\text{ V}$, $I_D = -2.2\text{ A}$		4		S
Dynamic^b						
Total Gate Charge	Q_g	$V_{DS} = -30\text{ V}$, $V_{GS} = -10\text{ V}$, $I_D = -2.2\text{ A}$		7	14	nC
Gate-Source Charge	Q_{gs}		1.6			
Gate-Drain Charge	Q_{gd}		1.2			
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = -30\text{ V}$, $R_L = 30\text{ }\Omega$ $I_D \cong -1\text{ A}$, $V_{GEN} = -10\text{ V}$, $R_G = 6\text{ }\Omega$		8	16	ns
Rise Time	t_r		12	24		
Turn-Off Delay Time	$t_{d(off)}$		23	45		
Fall Time	t_f		12	25		
Source-Drain Rating Characteristics^b						
Continuous Current	I_S				- 1.7	A
Pulsed Current	I_{SM}				- 10	
Diode Forward Voltage ^a	V_{SD}	$I_S = -1.7\text{ A}$, $V_{GS} = 0\text{ V}$		- 0.8	- 1.2	V
Source-Drain Reverse Recovery Time	t_{rr}	$I_F = -1.7\text{ A}$, $di/dt = 100\text{ A}/\mu\text{s}$		50	90	ns

Notes:

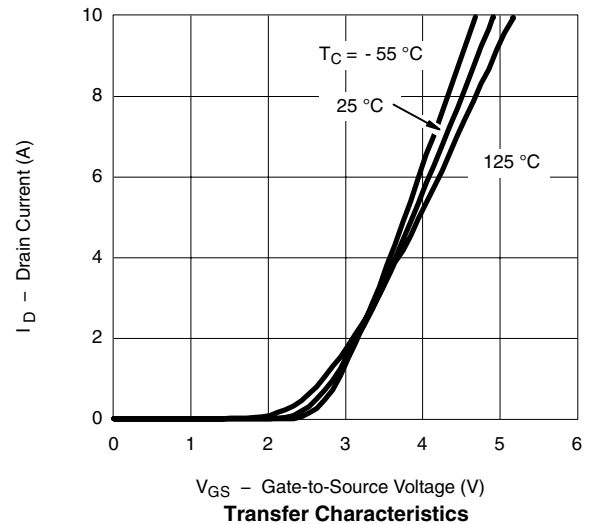
- a. Pulse test; pulse width $\leq 300\text{ }\mu\text{s}$, duty cycle $\leq 2\%$.
b. Guaranteed by design, not subject to production testing.

Stresses beyond those listed under "Absolute Maximum Ratings" may cause permanent damage to the device. These are stress ratings only, and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications is not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

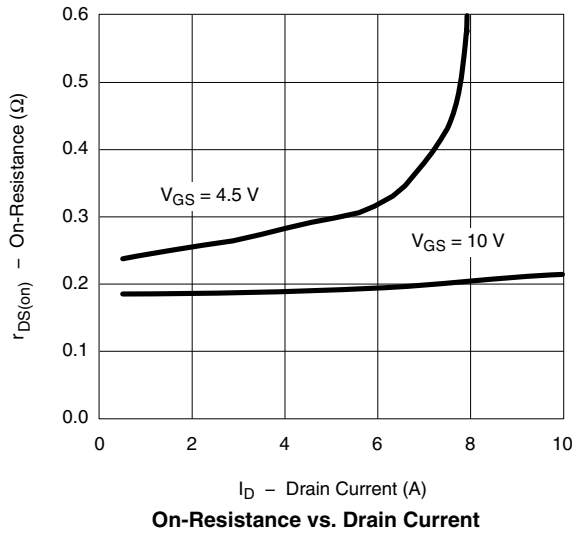
TYPICAL CHARACTERISTICS 25 °C, unless noted



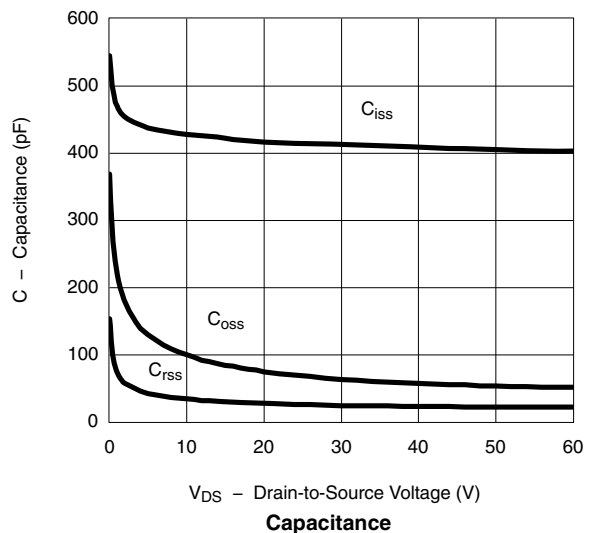
V_{DS} – Drain-to-Source Voltage (V)
Output Characteristics



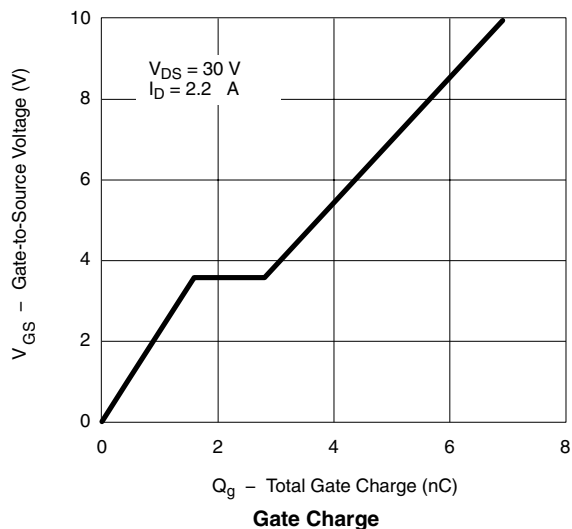
V_{GS} – Gate-to-Source Voltage (V)
Transfer Characteristics



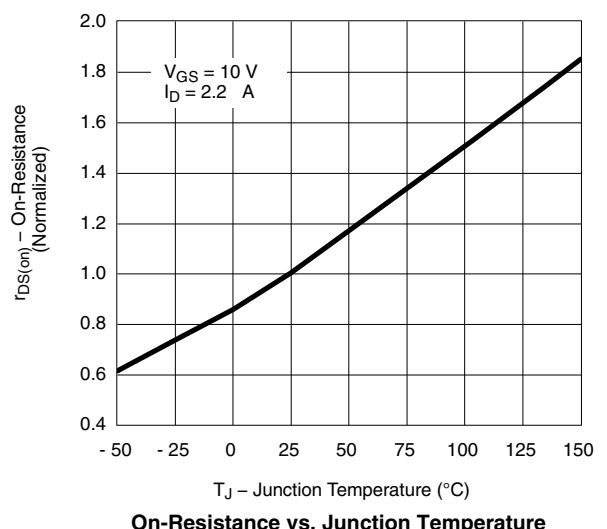
I_D – Drain Current (A)
On-Resistance vs. Drain Current



V_{DS} – Drain-to-Source Voltage (V)
Capacitance

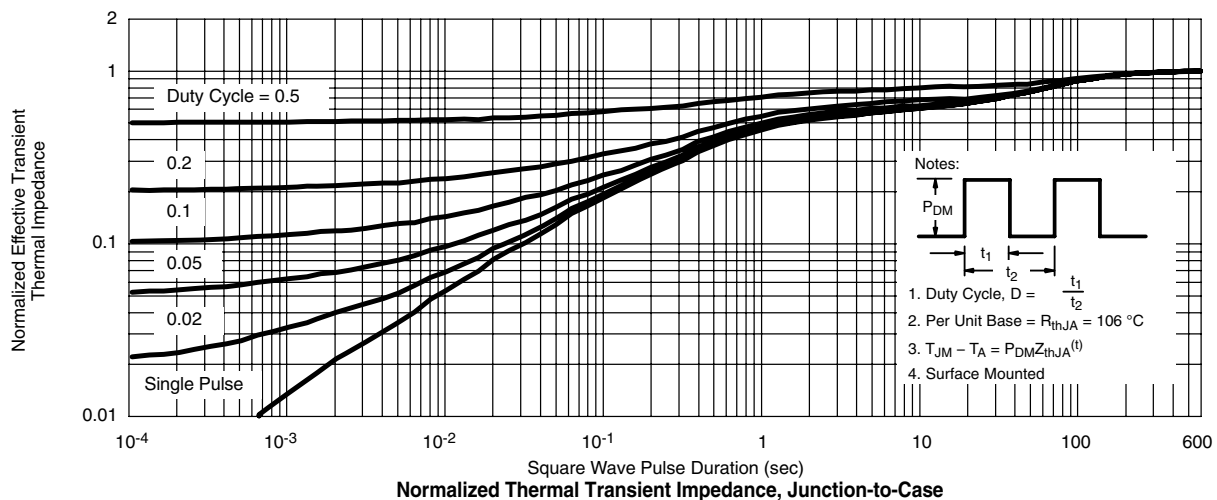
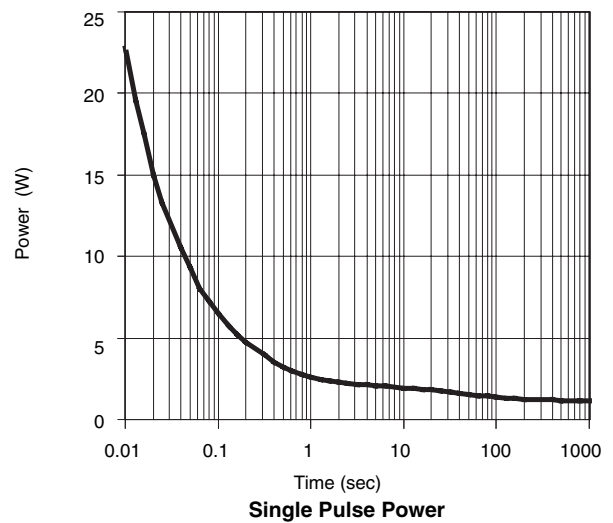
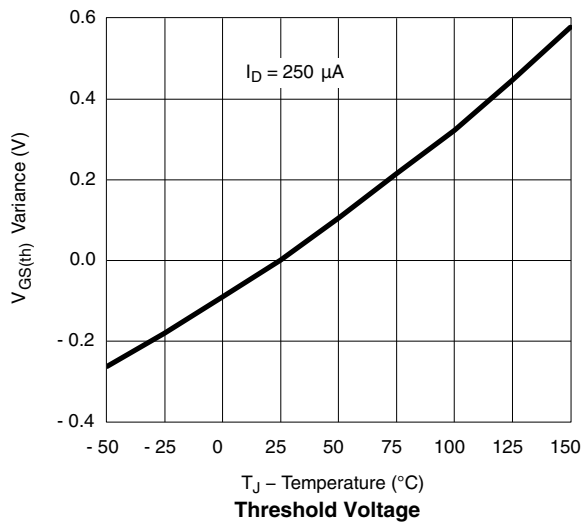
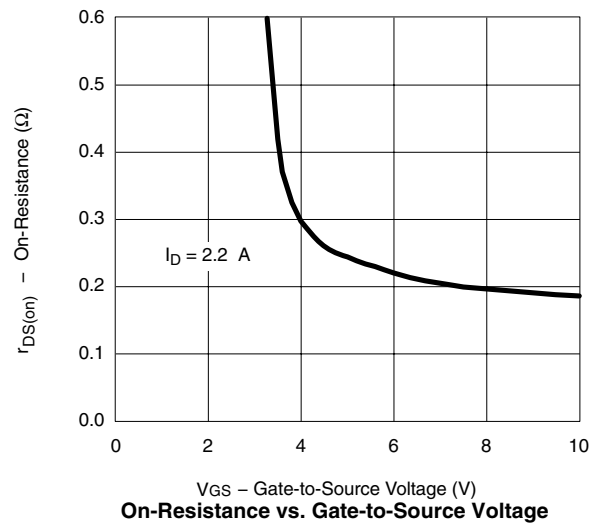
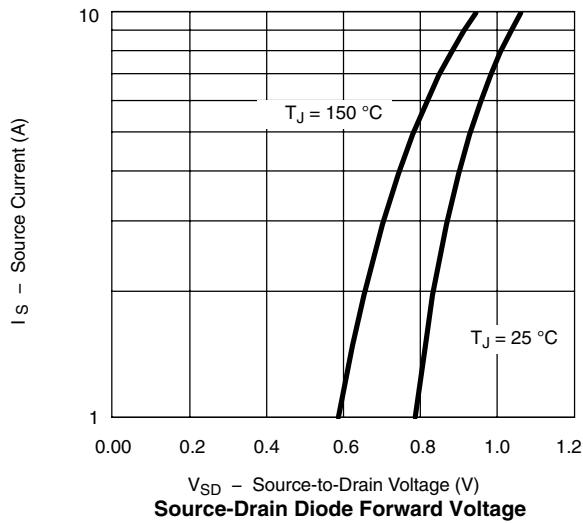


Q_g – Total Gate Charge (nC)
Gate Charge



T_J – Junction Temperature (°C)
On-Resistance vs. Junction Temperature

TYPICAL CHARACTERISTICS 25 °C, unless noted



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