N & P-Channel 80-V (D-S) MOSFET

PRODUCT SUMMARY		
V_{DS} (V)	$r_{DS(on)}$ (mΩ)	I_D (A)
80	740 @ V_{GS} = 10V	0.52
	810 @ V_{GS} = 4.5V	0.50
-80	3300 @ V_{GS} = -10V	-0.25
	3400 @ V_{GS} = -4.5V	-0.24

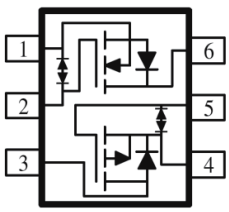
Key Features:
- Low $r_{DS(on)}$ trench technology
- Low thermal impedance
- Fast switching speed

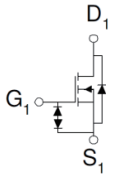
Typical Applications:
- LED Inverter Circuits
- DC/DC Conversion Circuits
- Motor drives

RoHS COMPLIANT
HALOGEN FREE

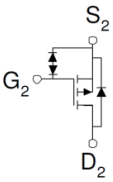
ESD Protected

SC70-6





N-Channel MOSFET



P-Channel MOSFET

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C UNLESS OTHERWISE NOTED)					
Parameter		**Symbol**	**Nch Limit**	**Pch Limit**	**Units**
Drain-Source Voltage		V_{DS}	80	-80	V
Gate-Source Voltage		V_{GS}	±20	±20	
Continuous Drain Current [a]	T_A=25°C	I_D	0.52	-0.25	A
	T_A=70°C		0.43	-0.21	
Pulsed Drain Current [b]		I_{DM}	2	-2	
Continuous Source Current (Diode Conduction) [a]		I_S	0.4	-0.4	A
Power Dissipation [a]	T_A=25°C	P_D	0.3	0.3	W
	T_A=70°C		0.21	0.21	
Operating Junction and Storage Temperature Range		T_J, T_{stg}	-55 to 150		°C

THERMAL RESISTANCE RATINGS				
Parameter		**Symbol**	**Maximum**	**Units**
Maximum Junction-to-Ambient [a]	t <= 10 sec	$R_{\theta JA}$	415	°C/W
	Steady State		460	

Notes

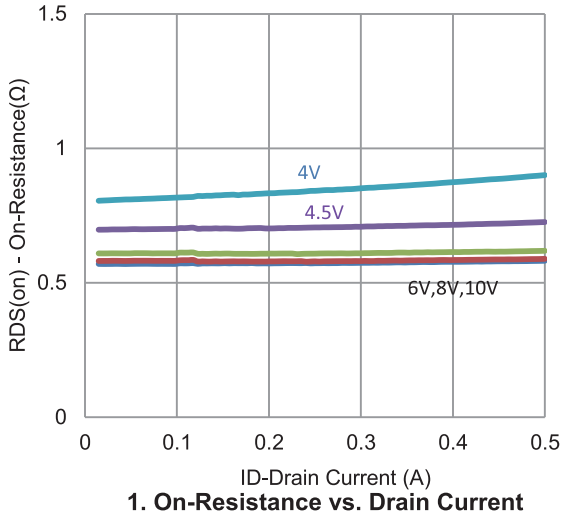
a. Surface Mounted on 1” x 1” FR4 Board.

b. Pulse width limited by maximum junction temperature

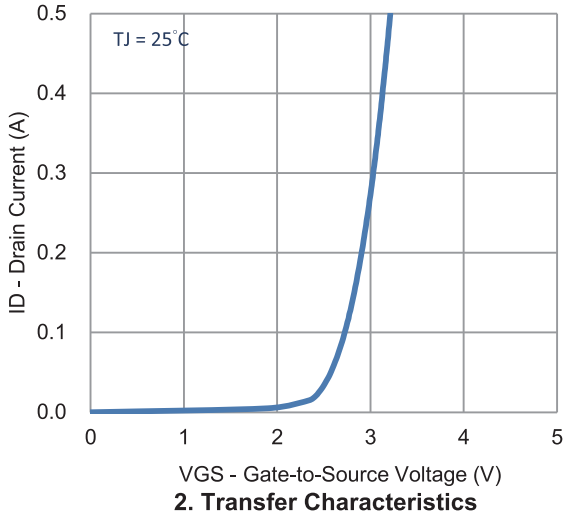
Electrical Characteristics

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static						
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250 uA **(N-ch)**	1			V
		V_{DS} = V_{GS}, I_D = -250 uA **(P-ch)**	-1			V
Gate-Body Leakage	I_{GSS}	V_{DS} = 0 V, V_{GS} = ±20 V			±10	uA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 64 V, V_{GS} = 0 V **(N-ch)**			1	uA
		V_{DS} = -64 V, V_{GS} = 0 V **(P-ch)**			-1	
On-State Drain Current [a]	$I_{D(on)}$	V_{DS} = 5 V, V_{GS} = 10 V **(N-ch)**	0.8			A
		V_{DS} = -5 V, V_{GS} = -10 V **(P-ch)**	-0.4			A
Drain-Source On-Resistance [a]	$r_{DS(on)}$	V_{GS} = 10 V, I_D = 0.44 A **(N-ch)**			740	mΩ
		V_{GS} = 4.5 V, I_D = 0.35 A **(N-ch)**			810	
		V_{GS} = -10 V, I_D = -0.2 A **(P-ch)**			3300	mΩ
		V_{GS} = -4.5 V, I_D = -0.16 A **(P-ch)**			3400	
Forward Transconductance [a]	g_{fs}	V_{DS} = 15 V, I_D = 0.44 A **(N-ch)**		9		S
		V_{DS} = -15 V, I_D = -0.2 A **(P-ch)**		7		S
Diode Forward Voltage [a]	V_{SD}	I_S = 0.2 A, V_{GS} = 0 V **(N-ch)**		0.76		V
		I_S = -0.2 A, V_{GS} = 0 V **(P-ch)**		-0.82		V
Dynamic [b]						
Total Gate Charge	Q_g	N - Channel V_{DS} = 40 V, V_{GS} = 4.5 V, I_D = 0.44 A		1.6		nC
Gate-Source Charge	Q_{gs}			0.6		
Gate-Drain Charge	Q_{gd}			1.0		
Turn-On Delay Time	$t_{d(on)}$	N - Channel V_{DS} = 40 V, R_L = 91 Ω, I_D = 0.44 A, V_{GEN} = 10 V, R_{GEN} = 6 Ω		3		ns
Rise Time	t_r			5		
Turn-Off Delay Time	$t_{d(off)}$			12		
Fall Time	t_f			4		
Input Capacitance	C_{iss}	N - Channel V_{DS} = 15 V, V_{GS} = 0 V, f = 1 Mhz		77		pF
Output Capacitance	C_{oss}			24		
Reverse Transfer Capacitance	C_{rss}			14		
Total Gate Charge	Q_g	P - Channel V_{DS} = -40 V, V_{GS} = -4.5 V, I_D = -0.2 A		2.1		nC
Gate-Source Charge	Q_{gs}			0.7		
Gate-Drain Charge	Q_{gd}			1.0		
Turn-On Delay Time	$t_{d(on)}$	P - Channel V_{DS} = -40 V, R_L = 200 Ω, I_D = -0.2 A, V_{GEN} = -10 V, R_{GEN} = 6 Ω		4		ns
Rise Time	t_r			6		
Turn-Off Delay Time	$t_{d(off)}$			9		
Fall Time	t_f			3		
Input Capacitance	C_{iss}	P - Channel V_{DS} = -15 V, V_{GS} = 0 V, f = 1 Mhz		100		pF
Output Capacitance	C_{oss}			24		
Reverse Transfer Capacitance	C_{rss}			13		

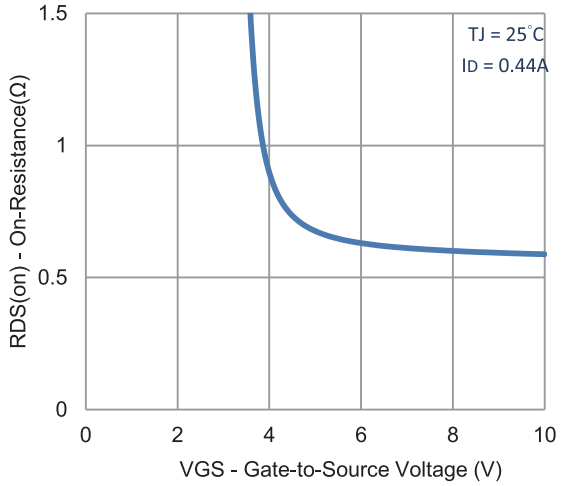
Typical Electrical Characteristics - N-channel



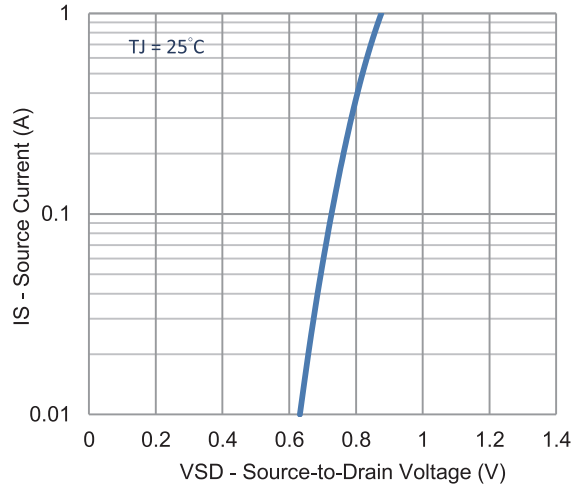
1. On-Resistance vs. Drain Current



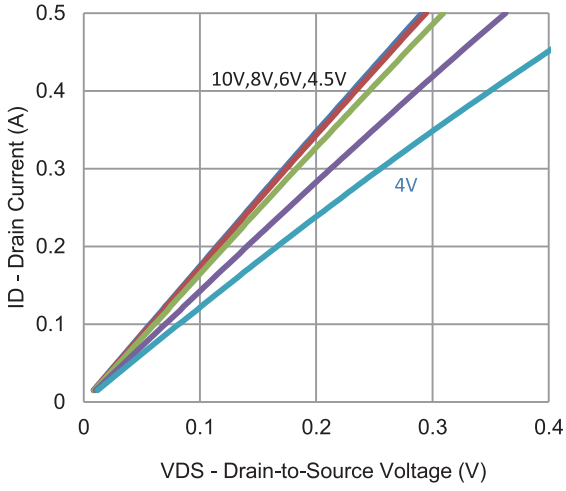
2. Transfer Characteristics



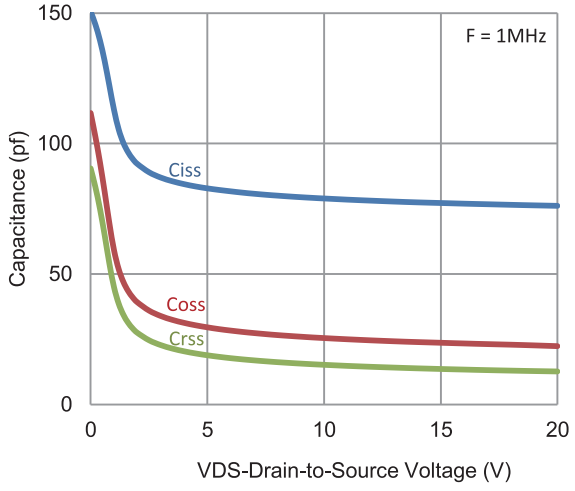
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

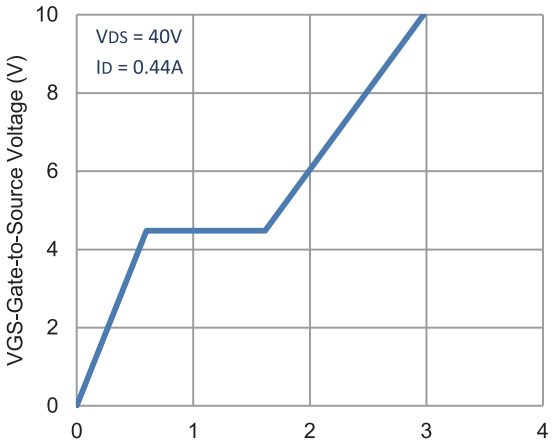


5. Output Characteristics

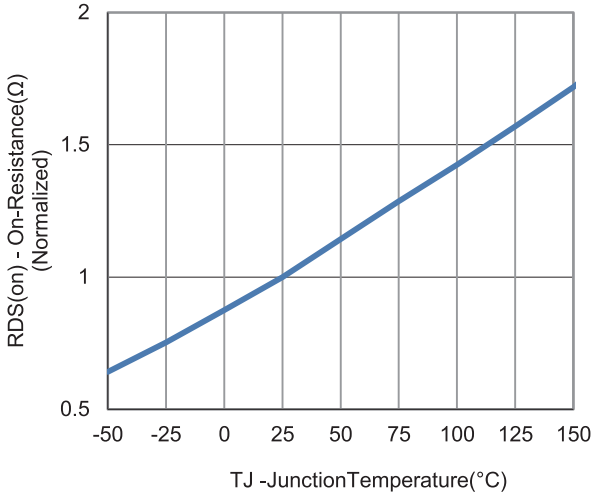


6. Capacitance

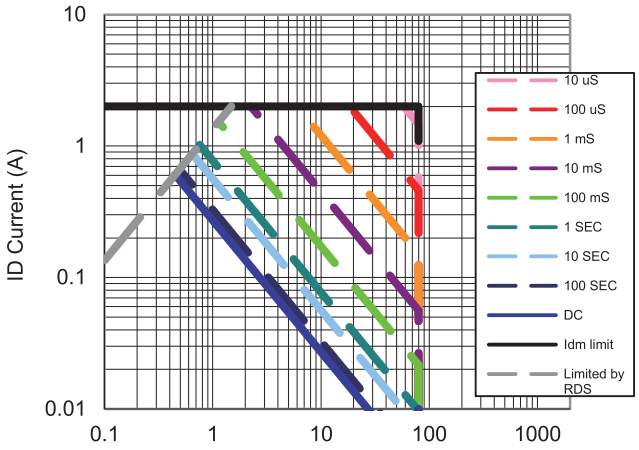
Typical Electrical Characteristics - N-channel



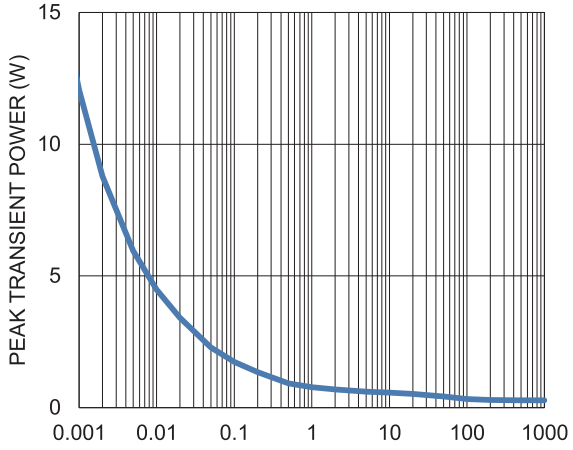
7. Gate Charge



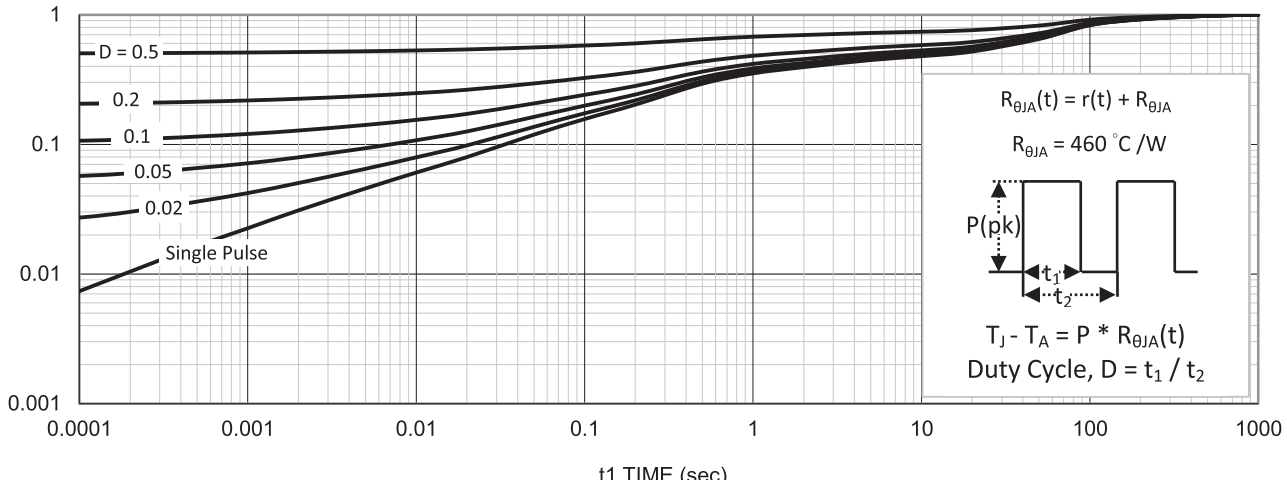
8. Normalized On-Resistance Vs Junction Temperature



9. Safe Operating Area

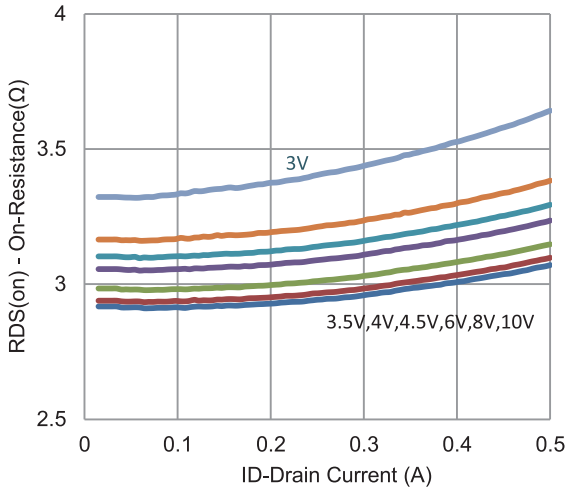


10. Single Pulse Maximum Power Dissipation

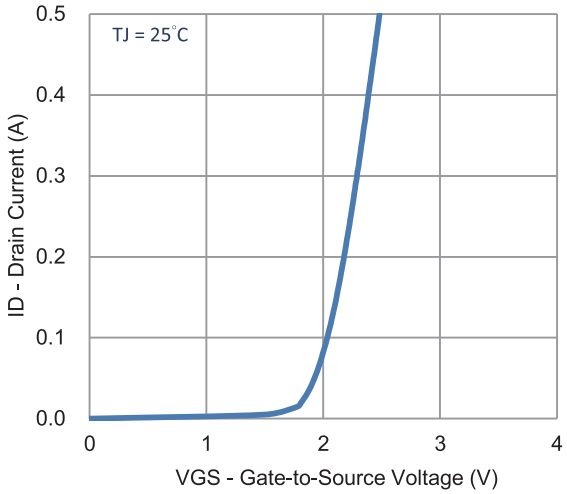


11. Normalized Thermal Transient Junction to Ambient

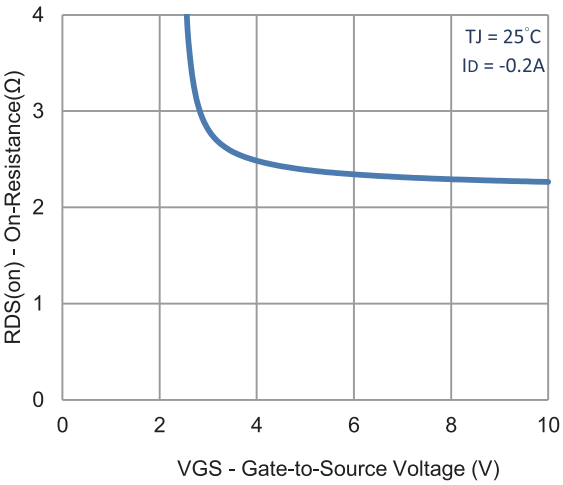
Typical Electrical Characteristics - P-channel



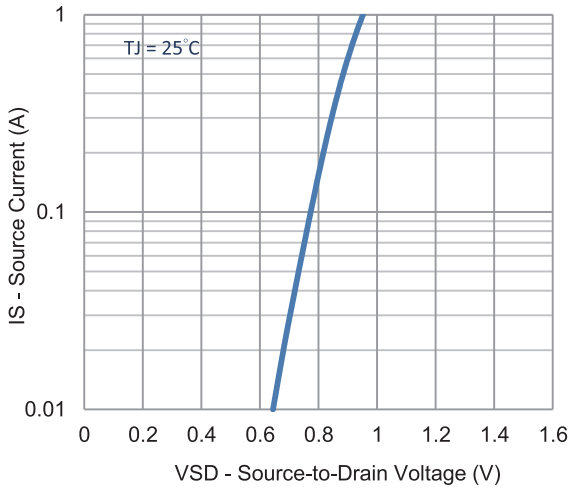
1. On-Resistance vs. Drain Current



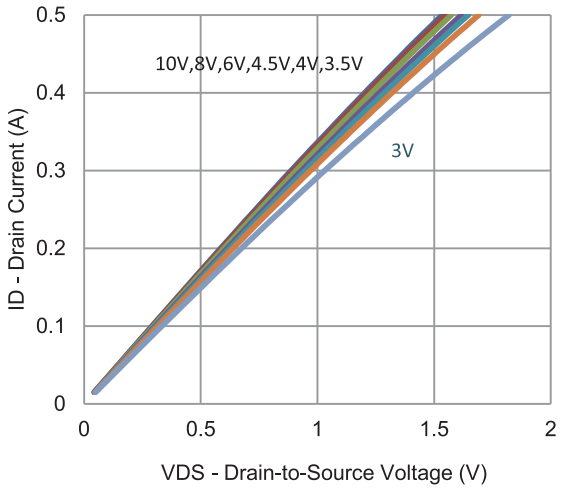
2. Transfer Characteristics



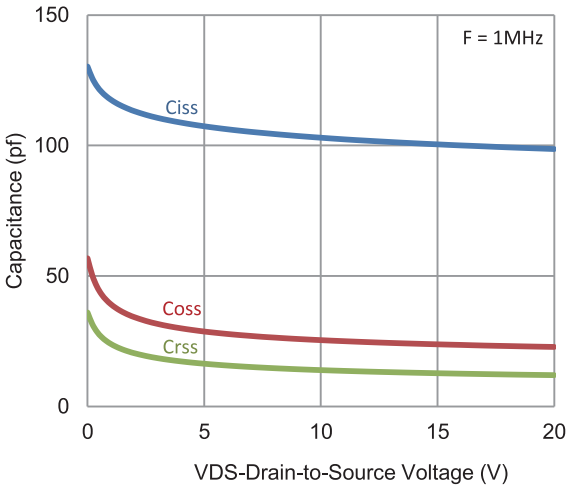
3. On-Resistance vs. Gate-to-Source Voltage



4. Drain-to-Source Forward Voltage

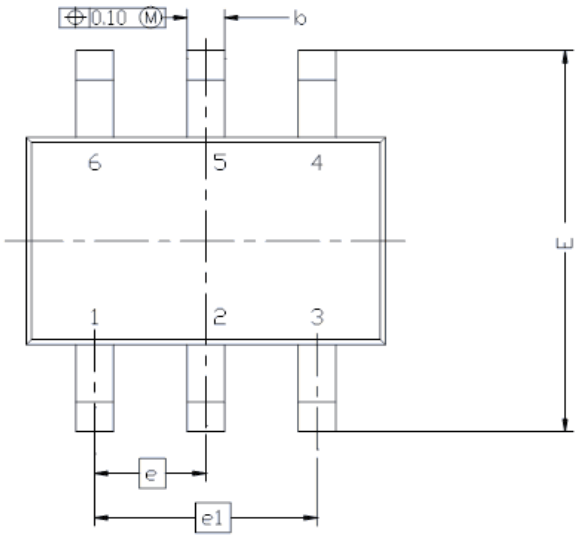


5. Output Characteristics

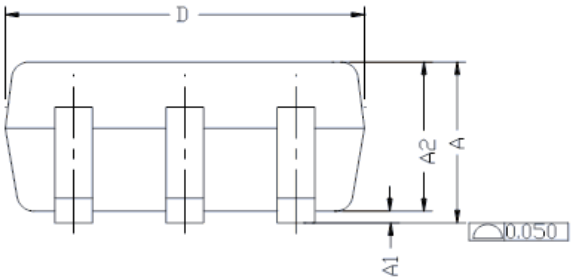


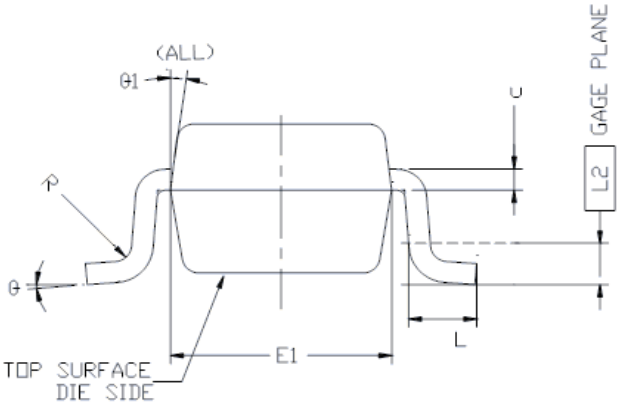
6. Capacitance

Package Information



DIM.	MILLIMETERS			INCHES		
	MIN	NOM	MAX	MIN	NOM	MAX
A	0.900	0.95	1.10	0.035	0.037	0.043
A1	0.00	---	0.10	0.000	---	0.004
A2	0.70	0.90	1.00	0.028	0.035	0.039
b	0.15	0.22	0.30	0.006	0.016	0.012
c	0.08	0.127	0.20	0.003	0.005	0.008
D	2.10 BSC			0.083 BSC		
E	2.30 BSC			0.091 BSC		
E1	1.30 BSC			0.051 BSC		
e	0.65 BSC			0.026 BSC		
e1	1.30 BSC			0.051 BSC		
L	0.26	0.40	0.46	0.010	0.015	0.018
L2	0.254BSC			0.010BSC		
R	0.10	---	---	0.004	---	---
θ	0?	4?	8?	0?	4?	8?
θ1	7?NOM			7?NOM		





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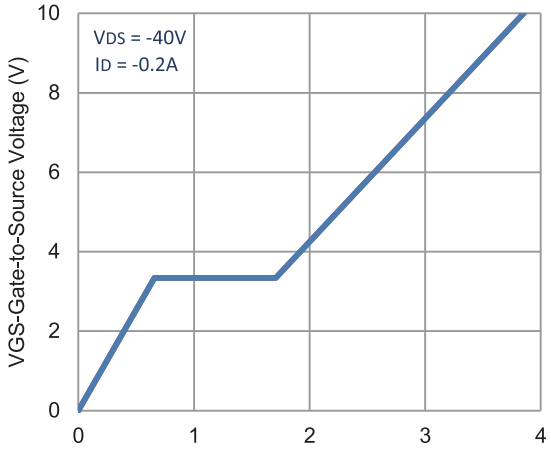
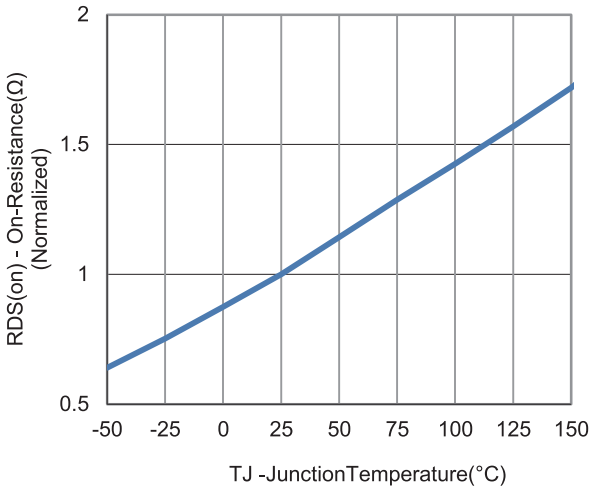
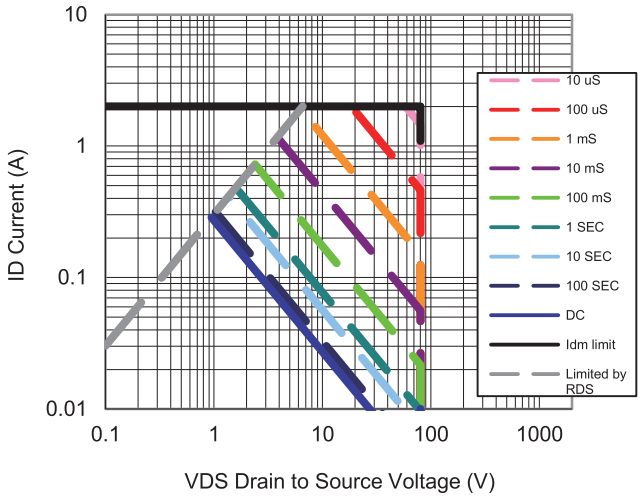


7. Gate Charge



8. Normalized On-Resistance Vs Junction Temperature



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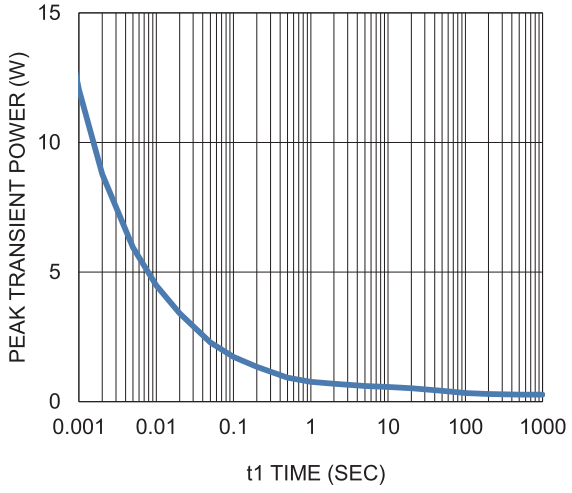

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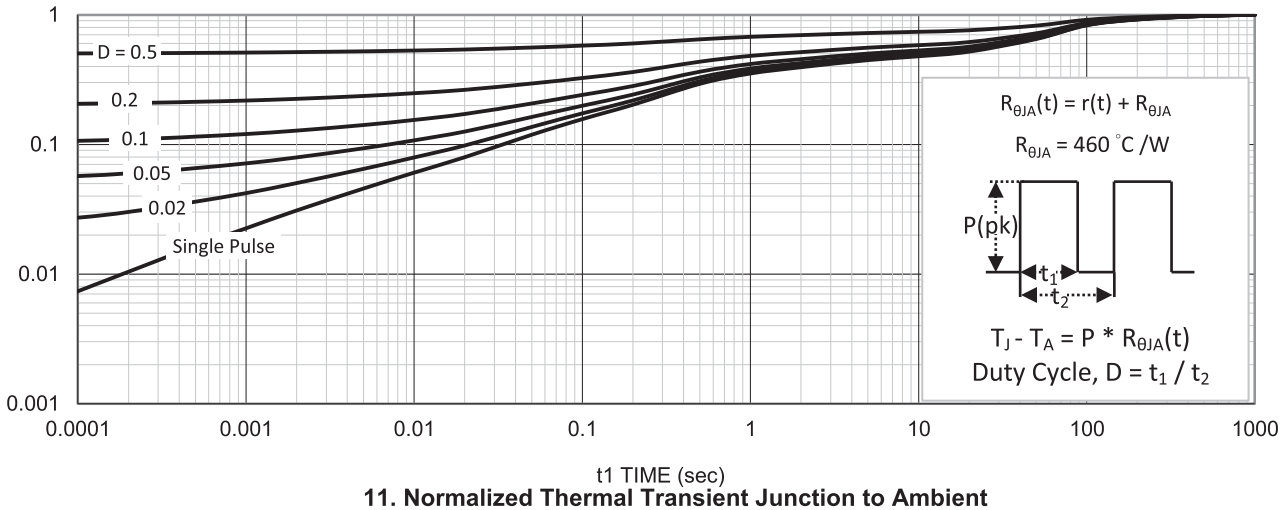

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