THERMAL RESISTANCE RATINGS				
PARAMETER	**SYMBOL**	**TYP.**	**MAX.**	**UNIT**
Maximum Junction-to-Ambient	R_{thJA}	-	80	°C/W
Maximum Junction-to-Case (Drain)	R_{thJC}	-	1.7	

SPECIFICATIONS (T_J = 25 °C, unless otherwise noted)						
PARAMETER	**SYMBOL**	**TEST CONDITIONS**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Static						
Drain-Source Breakdown Voltage	V_{DS}	V_{GS} = 0 V, I_D = - 250 µA	- 50	-	-	V
Gate-Source Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250 µA	- 2.0	-	- 4.0	V
Gate-Source Leakage	I_{GSS}	V_{GS} = ± 20 V	-	-	± 500	nA
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = max. rating, V_{GS} = 0 V	-	-	- 250	µA
		V_{DS} = max. rating x 0.8, V_{GS} = 0 V, T_J =125 °C	-	-	- 1000	
Drain-Source On-State Resistance	$R_{DS(on)}$	V_{GS} = - 10 V, I_D = - 9.3 A[b]	-	0.093	0.14	Ω
Forward Transconductance	g_{fs}	V_{DS} = 2 x V_{GS}, I_{DS} = - 9 A[b]	3.1	4.7	-	S
Dynamic						
Input Capacitance	C_{iss}	V_{GS} = 0 V, V_{DS} = - 25 V, f = 1.0 MHz, see fig. 9	-	900	-	pF
Output Capacitance	C_{oss}		-	570	-	
Reverse Transfer Capacitance	C_{rss}		-	140	-	
Total Gate Charge	Q_g	V_{GS} = - 10 V, I_D = - 18 A, V_{DS} = - 0.8 max. rating. see fig. 17	-	26	39	nC
Gate-Source Charge	Q_{gs}		-	6.9	10	
Gate-Drain Charge	Q_{gd}		-	9.7	15	
Turn-On Delay Time	$t_{d(on)}$	V_{DD} = - 25 V, I_D = - 18 A, R_g = 13 Ω, R_D = 1.3 Ω, see fig. 16 (MOSFET switching times are essentially independent of operating temperature)	-	12	18	ns
Rise Time	t_r		-	110	170	
Turn-Off Delay Time	$t_{d(off)}$		-	21	32	
Fall Time	t_f		-	64	96	
Drain-Source Body Diode Characteristics						
Continuous Source-Drain Diode Current	I_S	MOSFET symbol showing the integral reverse p - n junction diode 	-	-	- 18	A
Pulsed Diode Forward Current[a]	I_{SM}		-	-	- 60	
Body Diode Voltage	V_{SD}	T_J = 25 °C, I_S = - 18 A, V_{GS} = 0 V[b]	-	-	- 6.3	V
Body Diode Reverse Recovery Time	t_{rr}	T_J = 25 °C, I_F = - 18 A, dI/dt = 100 A/µs[b]	54	120	250	ns
Body Diode Reverse Recovery Charge	Q_{rr}		0.20	0.47	1.1	µC

Notes

a. Repetitive rating; pulse width limited by maximum junction temperature (see fig. 14).

b. Pulse width ≤ 300 µs; duty cycle ≤ 2 %.

TYPICAL CHARACTERISTICS (25 °C, unless otherwise noted)

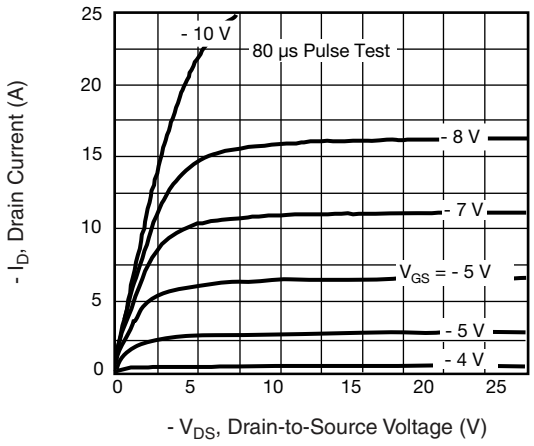

Fig. 1 - Typical Output Characteristics

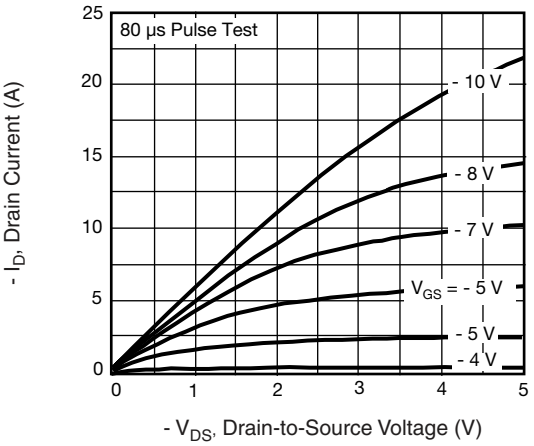

Fig. 3 - Typical Saturation Characteristics

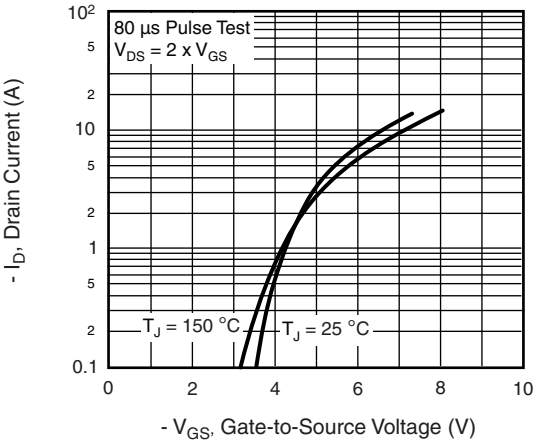

Fig. 2 - Typical Transfer Characteristics

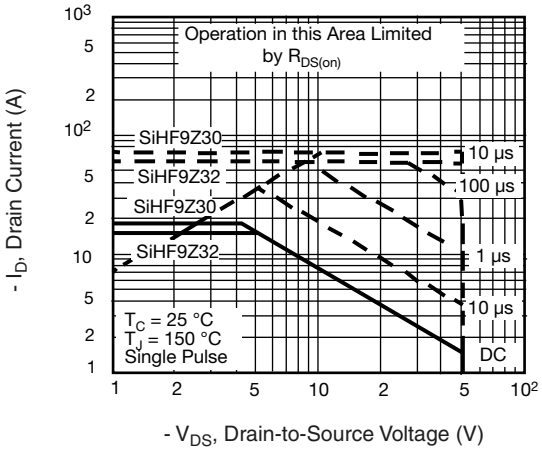

Fig. 4 - Maximum Safe Operating Area

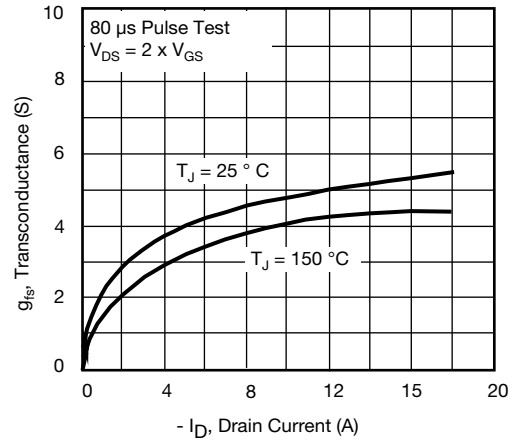

Fig. 5 - Typical Transconductance vs. Drain Current

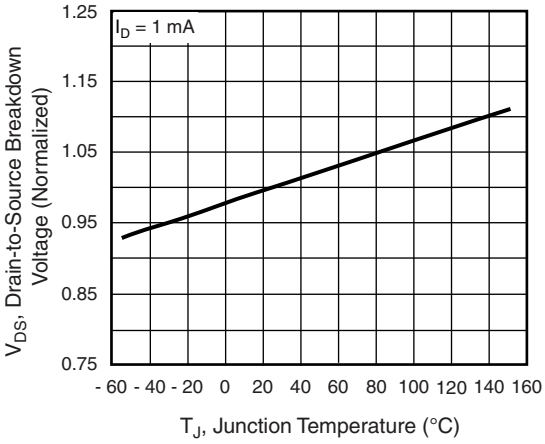

Fig. 7 - Breakdown Voltage vs. Temperature

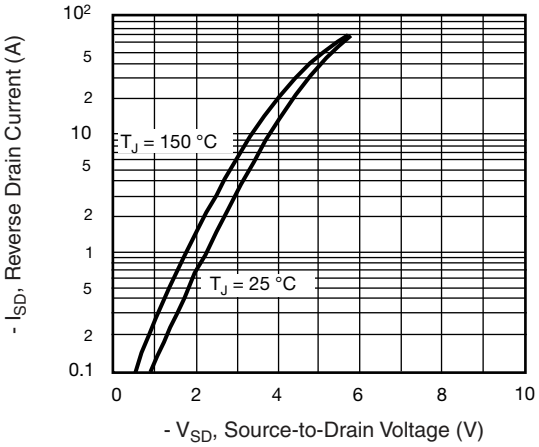

Fig. 6 - Typical Source-Drain Diode Forward Voltage

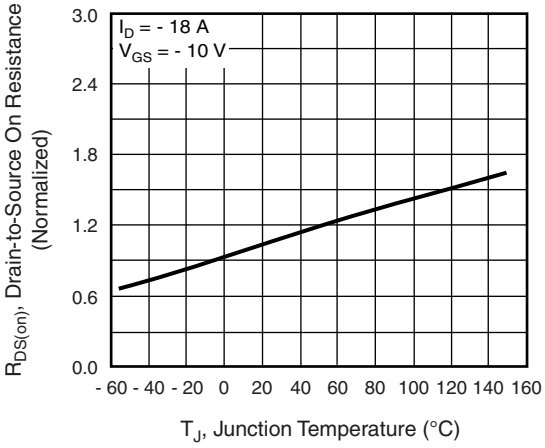

Fig. 8 - Normalized On-Resistance vs. Temperature

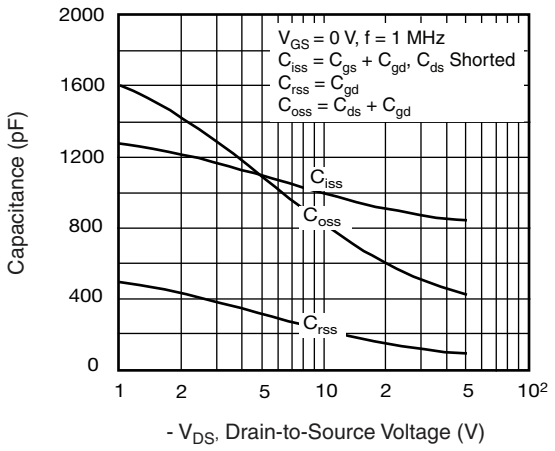

Fig. 9 - Typical Capacitance vs. Drain-to-Source Voltage

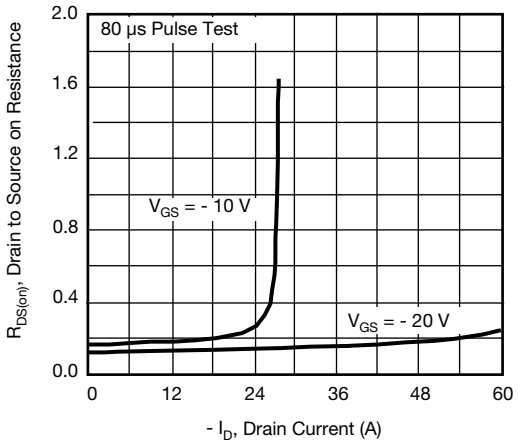

Fig. 11 - Typical On-Resistance vs. Drain Current

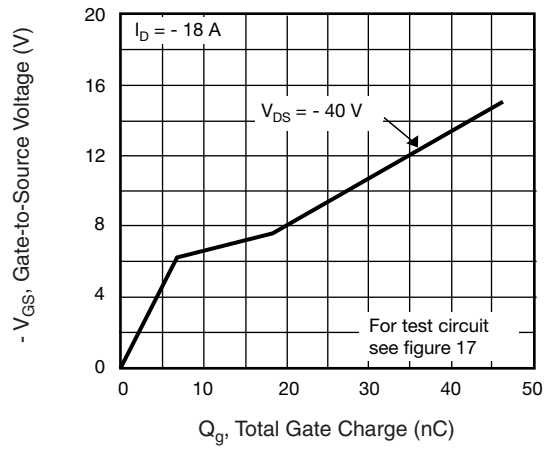

Fig. 10 - Typical Gate Charge vs. Gate-to-Source Voltage

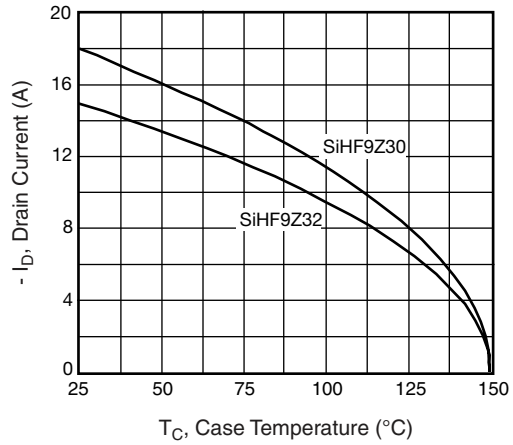

Fig. 12 - Maximum Drain Current vs. Case Temperature

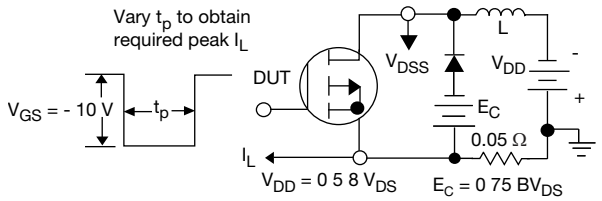

Fig. 13a - Unclamped Inductive Test Circuit

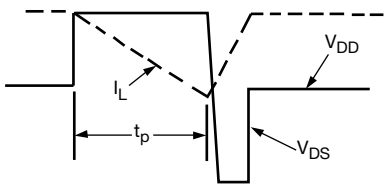

Fig. 13b - Unclamped Inductive Load Test Waveforms

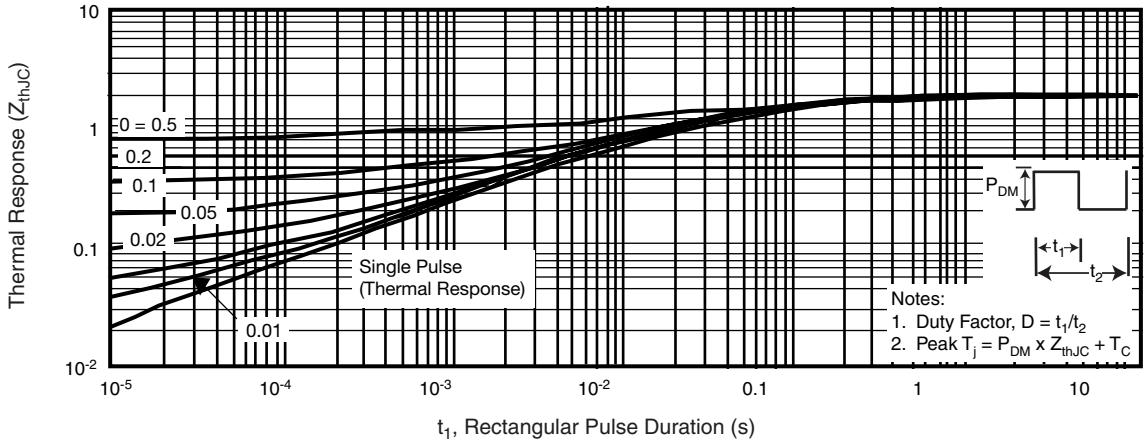

Fig. 14 - Maximum Effective Transient Thermal Impedance, Junction-to-Case vs. Pulse Duration

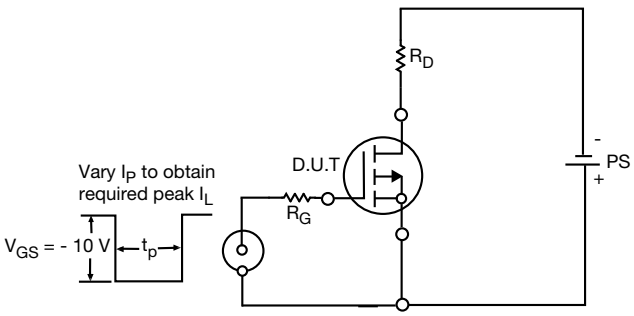

Fig. 15 - Switching Time Test Circuit

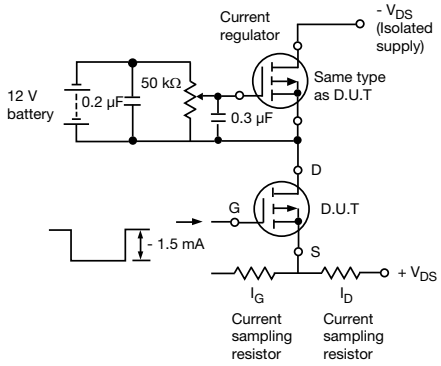

Fig. 16 - Gate Charge Test Circuit

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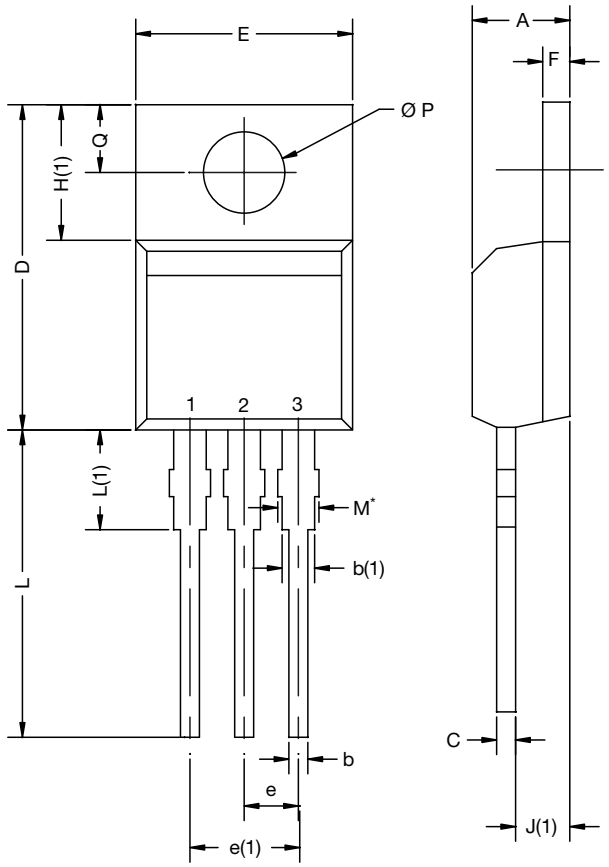

DIM.	MILLIMETERS		INCHES	
	MIN.	MAX.	MIN.	MAX.
A	4.24	4.65	0.167	0.183
b	0.69	1.02	0.027	0.040
b(1)	1.14	1.78	0.045	0.070
c	0.36	0.61	0.014	0.024
D	14.33	15.85	0.564	0.624
E	9.96	10.52	0.392	0.414
e	2.41	2.67	0.095	0.105
e(1)	4.88	5.28	0.192	0.208
F	1.14	1.40	0.045	0.055
H(1)	6.10	6.71	0.240	0.264
J(1)	2.41	2.92	0.095	0.115
L	13.36	14.40	0.526	0.567
L(1)	3.33	4.04	0.131	0.159
Ø P	3.53	3.94	0.139	0.155
Q	2.54	3.00	0.100	0.118
ECN: E21-0621-Rev. D, 04-Nov-2021 DWG: 6031				

Note

- M* = 0.052 inches to 0.064 inches (dimension including protrusion), heatsink hole for HVM

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