SMTV06N028SL3H

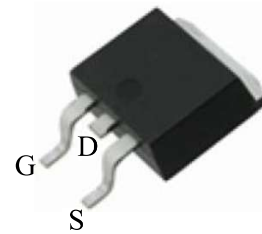
N-Channel Enhancement Mode Field Effect Transistor

FEATURES

- Advanced trench cell design
- High speed switch
- Suffix "H" indicates Halogen-free parts, ex.SMTV06N028SL3H

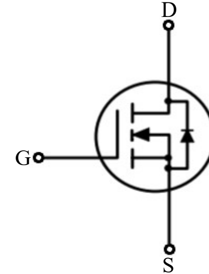
PIN CONFIGURATION

TO-263



TOP VIEW

D	Drain
G	Gate
S	Source



Maximum Ratings(T_A=25 ℃ unless otherwise noted)

Parameter		Symbol	Value	Unit
Drain-Source Voltage		V_{DS}	60	V
Gate-Source Voltage		V_{GS}	±20	
Continuous Drain Current	T_C=25℃	I_D	120	A
	T_C=100℃		77	
Pulsed Drain Current (Note 1)		I_{DM}	480	A
Avalanche Current		I_{AS}	44.8	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	100.3	mJ
Power Dissipation	T_C=25℃	P_D	62.5	W
Thermal Resistance from Junction to Ambient (Note 3)		$R_{\theta JA}$	40	℃/W
Thermal Resistance from Junction to Case		$R_{\theta JC}$	2	℃/W
Operating Junction and Storage Temperature Range		T_J, T_{stg}	- 55 to + 150	℃

Note:

1. The data tested by pulsed, pulse width ≦100μs, duty cycle ≦2%, Reptitive rating, pulse width limited by junction temperature $T_{J(MAX)}$=150°C.
2. Limited by $T_{J(MAX)}$, starting T_J=25°C, L=0.1mH, R_g=25Ω, I_{AS}=44.8A, V_{GS}=10V.
3. Device mounted on FR-4 substrate PC board, 2oz copper, with 1 inch^2 copper plate in still air.

Electrical Characteristics(T_A=25 ℃ unless otherwise specified)

Parameter	Conditions	Symbol	Min.	Typ.	Max.	Unit
Static						
Drain-Source Breakdown Voltage	I_D=1mA	$V_{(BR)DSS}$	60	-	-	V
Gate Threshold Voltage	V_{DS}=V_{GS}, I_D=120μA	$V_{GS(th)}$	2.0	-	4.0	V
Zero Gate Voltage Drain Current	V_{DS}=60V	I_{DSS}	-	-	1	μA
Gate Leakage Current	V_{GS}=±20V	I_{GSS}	-	-	±100	nA
Drain-Source On-Resistance	V_{GS}=10V, I_D=100A	$R_{DS(on)}$	-	2.8	3.2	mΩ
Dynamic						
Gate Resistance	V_{DS}=0V, V_{GS}=0, f=1MHz	R_g	-	1.1	-	Ω
Total Gate Charge	V_{DS}=30V, V_{GS}=10V, I_D=25A	Q_g	-	75	-	nC
Gate-Source Charge		Q_{gs}	-	23	-	
Gate-Drain Charge		Q_{gd}	-	22	-	
Input Capacitance	V_{DS}=25V, V_{GS}=0V, f=1MHz	C_{iss}	-	4597	-	pF
Output Capacitance		C_{oss}	-	2133	-	
Reverse Transfer Capacitance		C_{rss}	-	110	-	
Turn on Delay Time	V_{DS}=30V, I_D=25A, V_{GS}=10V, R_g=4.7Ω, R_L=1.2Ω	$t_{d(on)}$	-	39	-	ns
Turn on Rise Time		t_r	-	69	-	
Turn off Delay Time		$t_{d(off)}$	-	27	-	
Turn off Fall Time		t_f	-	9	-	
Drain-Source Body Diode						
Diode Forward Voltage	V_{GS}=0V, I_S=100A	V_{SD}	-	-	1.3	V
Diode Continuous Forward Current	-	I_S	-	-	120	A
Diode Pulse Current		I_{SM}	-	-	480	A
Reverse Recovery Time	I_S=25A, di/dt=100A/μs	t_{rr}	-	44	-	ns
Reverse Recovery Charge		Q_{rr}	-	40	-	nC

RATINGS AND CHARACTERISTIC CURVES

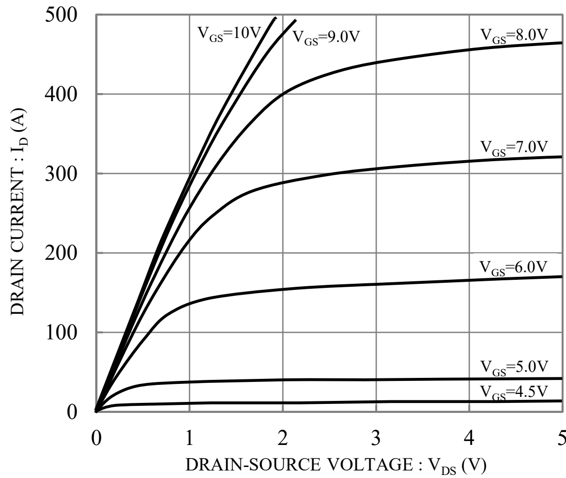


Fig.1 Typical Output Characteristics

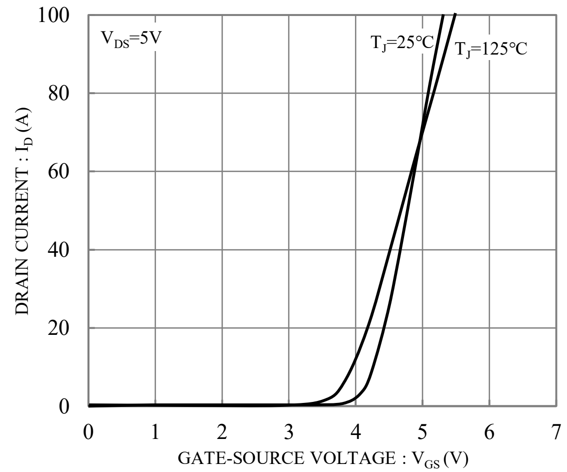


Fig.2 Typical Transfer Characteristics

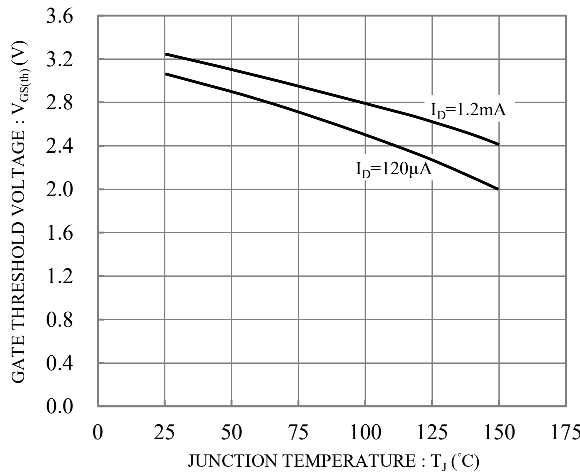


Fig.3 Gate Threshold Voltage vs. Junction Temperature

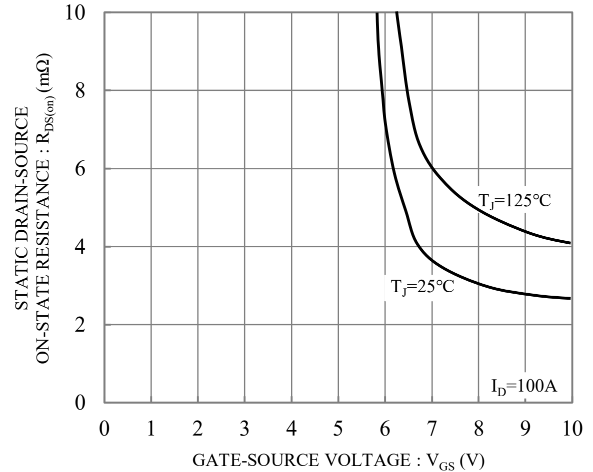


Fig.4 Static Drain-Source On-State Resistance vs. Gate-Source Voltage

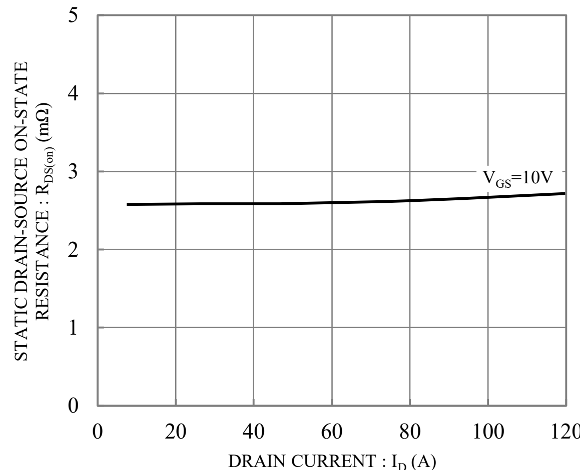


Fig.5 Static Drain-Source On-State Resistance vs. Drain Current

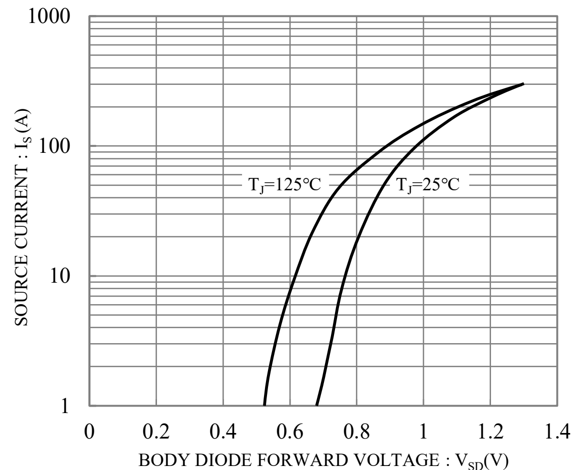


Fig.6 Body Diode Forward Voltage vs. Source Current

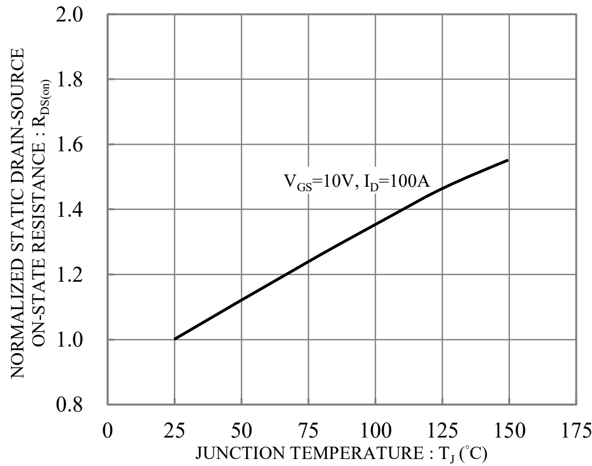


Fig.7 Drain-Source On-State Resistance vs Junction Tempearture

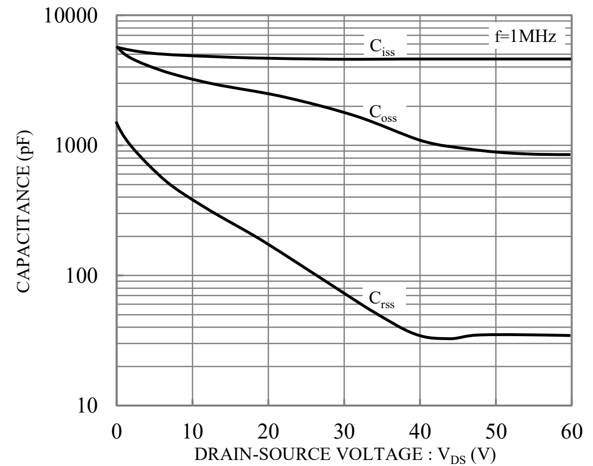


Fig.8 Capacitance vs Drain-Source Voltage

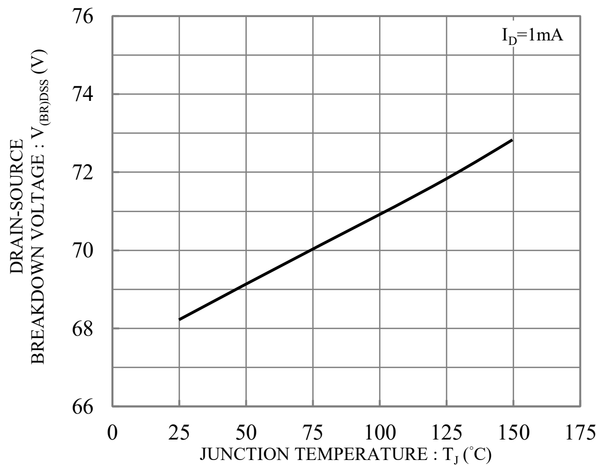


Fig.9 Breakdown Voltage vs Junction Temperature

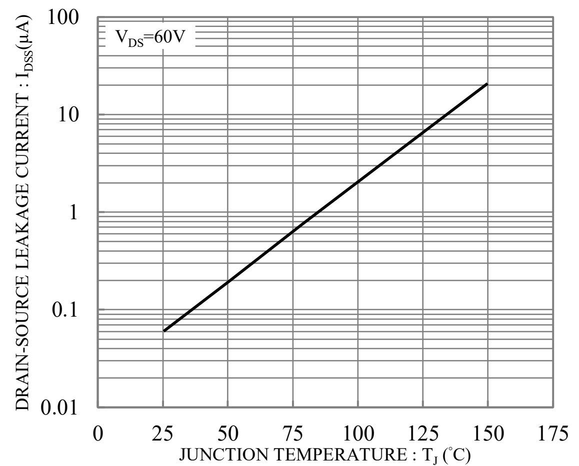


Fig.10 Drain-Source Leakge Current vs Junction Temperature

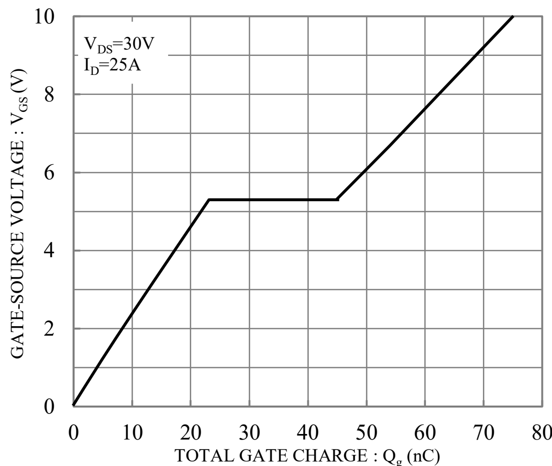


Fig.11 Gate Charge Characteristics

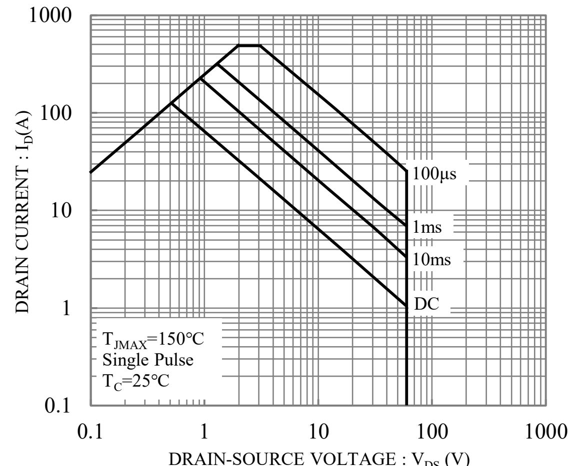


Fig.12 Drain-Source Leakge Current vs Junction Temperature

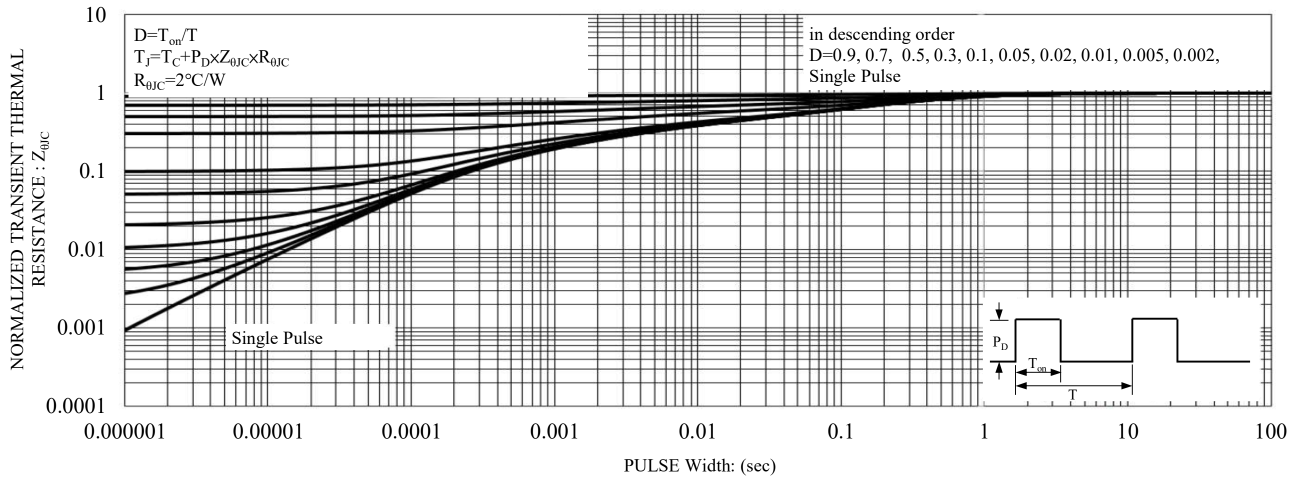


Fig.13 Maximum Transient Thermal Impedance

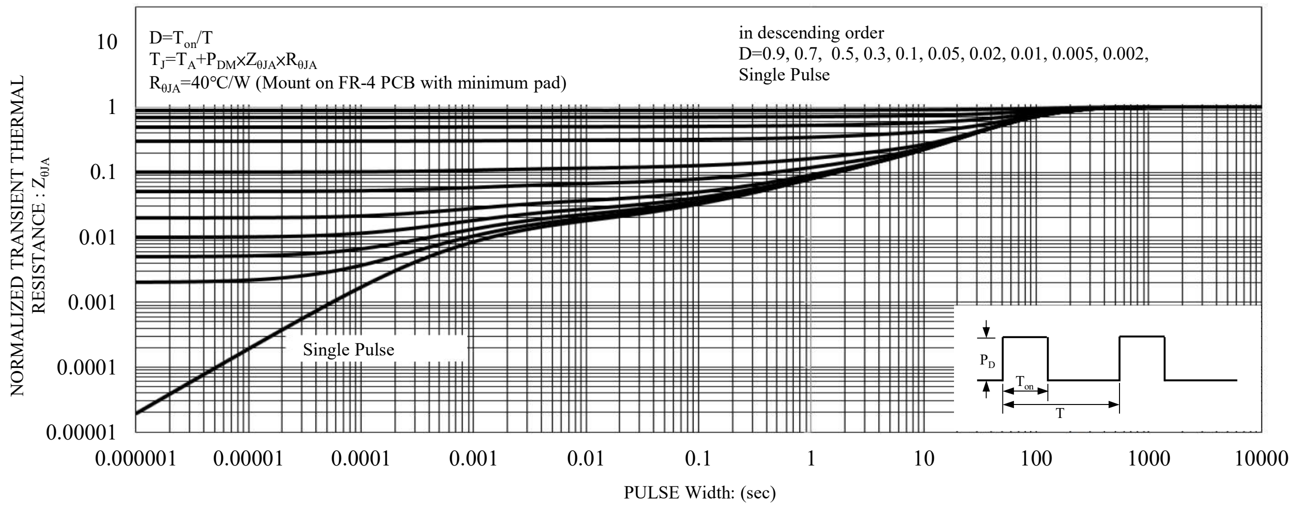
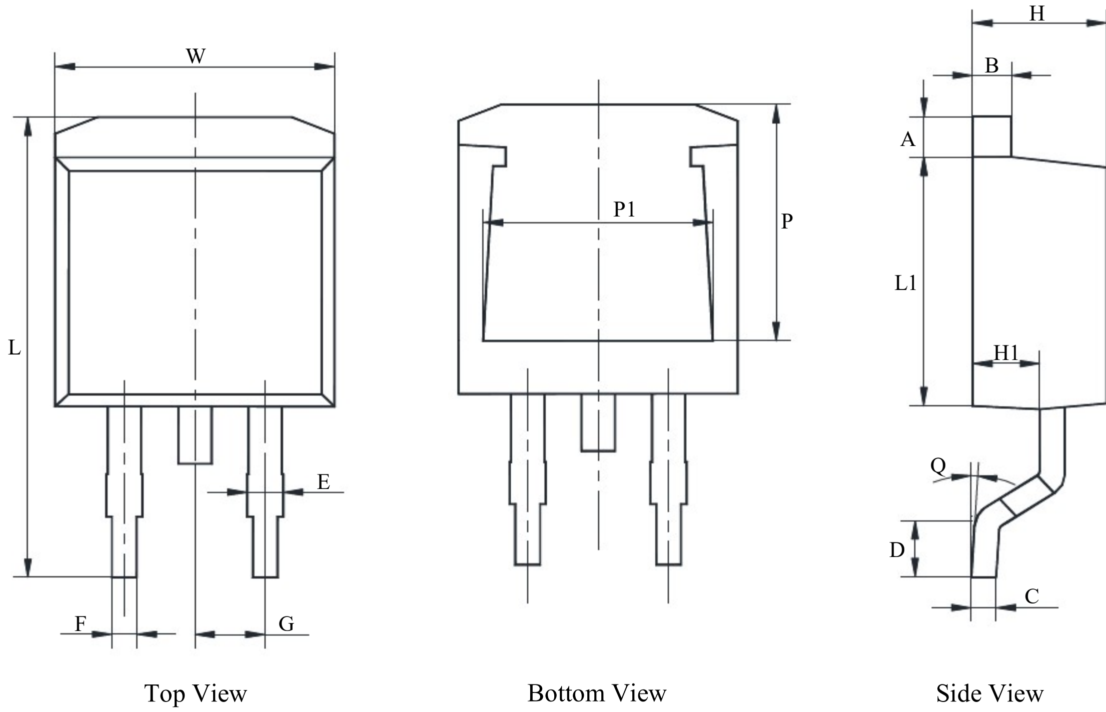


Fig.14 Maximum Transient Thermal Impedance

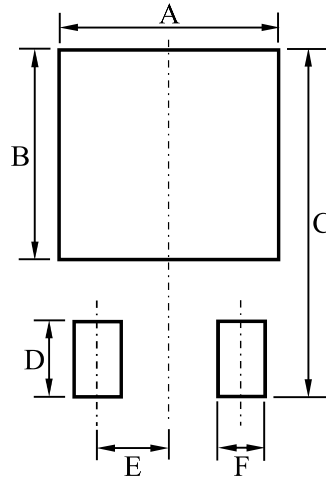
PACKAGE DIMENSION

TO-263



Symbol	Millimeters		Inches	
	Min	**Max**	**Min**	**Max**
A	1.10	1.50	0.043	0.059
B	1.10	1.50	0.043	0.059
C	0.30	0.50	0.012	0.020
D	2.15	2.60	0.085	0.102
E	1.10	1.60	0.043	0.063
F	0.68	0.94	0.027	0.037
G	Typ. 2.54		Typ. 0.100	
W	9.60	10.50	0.378	0.413
H	4.40	4.80	0.173	0.189
H1	2.50	2.90	0.098	0.114
L	14.50	16.50	0.571	0.650
L1	8.20	8.70	0.323	0.343
Q	8°		Typ. 0.181	
P	7.10	7.60	0.280	0.299
P1	7.40	8.20	0.291	0.323

SUGGESTED SOLDER PAD LAYOUT



Unit :mm

PACKAGE	A	B	C	D	E	F
TO-263	10.80	11.40	16.90	3.50	2.54	1.10