



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

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N-Channel Power MOSFET

700V, 8A, 0.6Ω

FEATURES

- Super-Junction technology
- High performance, small $R_{DS(on)} \cdot Q_g$ figure of merit (FOM)
- High ruggedness performance
- 100% UIS and R_g tested
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21

KEY PERFORMANCE PARAMETERS

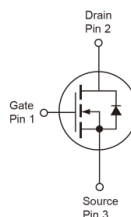
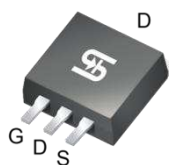
PARAMETER	VALUE	UNIT
V_{DS}	700	V
$R_{DS(on)}$ (max)	0.6	Ω
Q_g	12.6	nC

APPLICATIONS

- Power Supply
- AC/DC LED Lighting



TO-262S (I²PAK SL)



ABSOLUTE MAXIMUM RATINGS ($T_A = 25^\circ\text{C}$ unless otherwise noted)

PARAMETER		SYMBOL	LIMIT	UNIT
Drain-Source Voltage		V _{DS}	700	V
Gate-Source Voltage		V _{GS}	±30	V
Continuous Drain Current ^(Note 1)	T _C = 25°C	I _D	8	A
	T _C = 100°C		4.6	A
Pulsed Drain Current ^(Note 2)		I _{DM}	24	A
Total Power Dissipation @ T _C = 25°C		P _D	83	W
Single Pulse Avalanche Energy ^(Note 3)		E _{AS}	100	mJ
Single Pulse Avalanche Current ^(Note 3)		I _{AS}	2	A
Operating Junction and Storage Temperature Range		T _J , T _{STG}	- 55 to +150	°C

THERMAL PERFORMANCE

PARAMETER	SYMBOL	LIMIT	UNIT
Junction to Case Thermal Resistance	$R_{\theta JC}$	1.5	°C/W
Junction to Ambient Thermal Resistance	$R_{\theta JA}$	62	°C/W

Thermal Performance Note: $R_{\theta JA}$ is the sum of the junction-to-case and case-to-ambient thermal resistances. The case-thermal reference is defined at the solder mounting surface of the drain pins. $R_{\theta JA}$ is guaranteed by design while $R_{\theta CA}$ is determined by the user's board design. $R_{\theta JA}$ shown below for single device operation on FR-4 PCB with minimum recommended footprint in still air.

ELECTRICAL SPECIFICATIONS (T _A = 25°C unless otherwise noted)						
PARAMETER	CONDITIONS	SYMBOL	MIN	TYP	MAX	UNIT
Static						
Drain-Source Breakdown Voltage	V _{GS} = 0V, I _D = 250μA	BV _{DSS}	700	--	--	V
Gate Threshold Voltage	V _{DS} = V _{GS} , I _D = 250μA	V _{GS(TH)}	2.0	2.9	4.0	V
Gate Body Leakage	V _{GS} = ±30V, V _{DS} = 0V	I _{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V _{DS} = 700V, V _{GS} = 0V	I _{DSS}	--	--	1	μA
Drain-Source On-State Resistance (Note 4)	V _{GS} = 10V, I _D = 2.4A	R _{DS(on)}	--	0.53	0.6	Ω
Dynamic (Note 5)						
Total Gate Charge	V _{DS} = 380V, I _D = 8A, V _{GS} = 10V	Q _g	--	12.6	--	nC
Gate-Source Charge		Q _{gs}	--	2.9	--	
Gate-Drain Charge		Q _{gd}	--	4.5	--	
Input Capacitance	V _{DS} = 100V, V _{GS} = 0V, f = 1.0MHz	C _{iss}	--	743	--	pF
Output Capacitance		C _{oss}	--	63	--	
Gate Resistance	f = 1.0MHz	R _g	--	3.6	7.2	Ω
Switching (Note 6)						
Turn-On Delay Time	V _{DD} = 380V, R _{GEN} = 25Ω, I _D = 8A, V _{GS} = 10V	t _{d(on)}	--	36	--	ns
Turn-On Rise Time		t _r	--	21	--	
Turn-Off Delay Time		t _{d(off)}	--	95	--	
Turn-Off Fall Time		t _f	--	21	--	
Source-Drain Diode						
Forward On Voltage (Note 4)	I _S = 8A, V _{GS} = 0V	V _{SD}	--	--	1.4	V
Reverse Recovery Time	V _R =200V, I _S = 4A dI _F /dt = 100A/μs	t _{rr}	--	187.9	--	ns
Reverse Recovery Charge		Q _{rr}	--	1.4	--	μC

Notes:

1. Current limited by package.
2. Pulse width limited by the maximum junction temperature.
3. $L = 50mH, I_{AS} = 2A, V_{DD} = 50V, R_G = 25\Omega$, Starting $T_J = 25^\circ C$
4. Pulse test: $PW \leq 300\mu s$, duty cycle $\leq 2\%$.
5. For DESIGN AID ONLY, not subject to production testing.
6. Switching time is essentially independent of operating temperature.

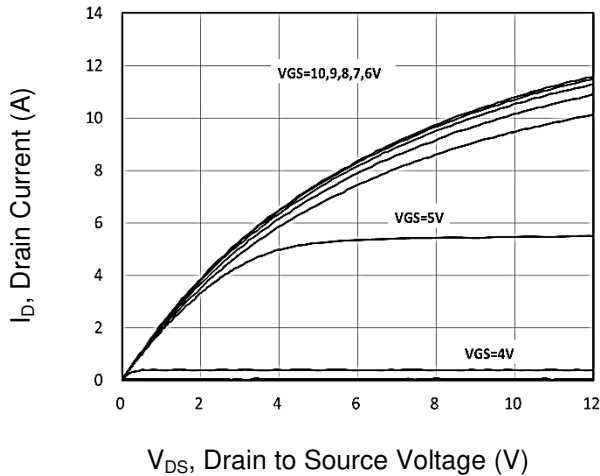
ORDERING INFORMATION

PART NO.	PACKAGE	PACKING
TSM70N600ACL X0G	TO-262S (I ² PAK SL)	50pcs / Tube

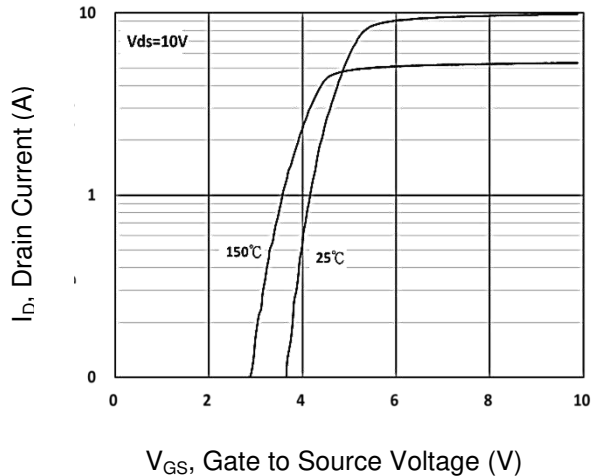
CHARACTERISTICS CURVES

($T_C = 25^\circ\text{C}$ unless otherwise noted)

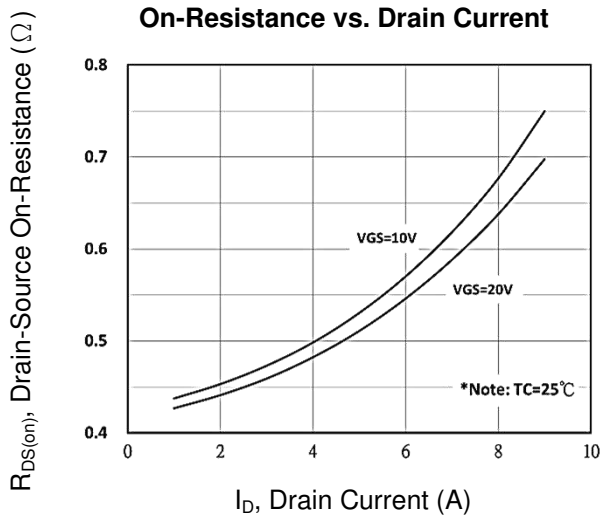
Output Characteristics



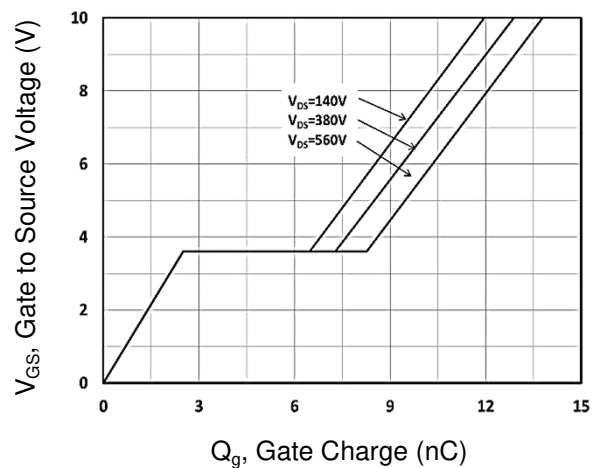
Transfer Characteristics



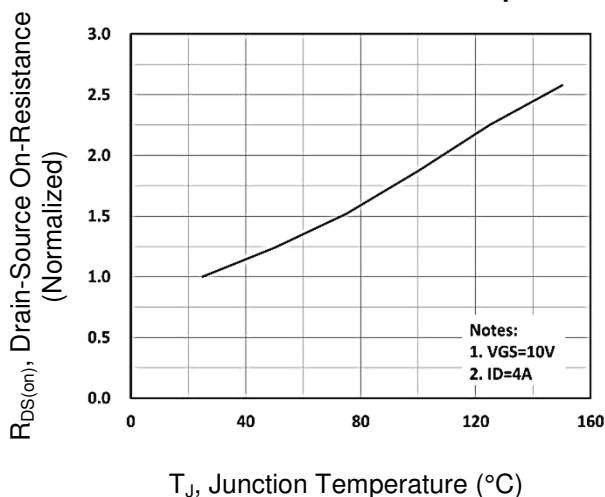
On-Resistance vs. Drain Current



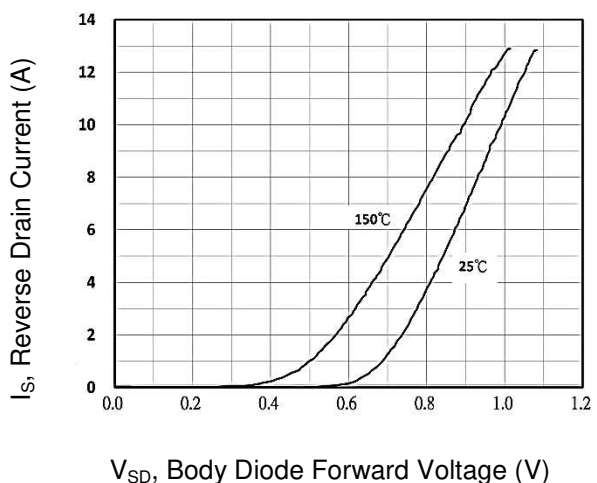
Gate-Source Voltage vs. Gate Charge



On-Resistance vs. Junction Temperature



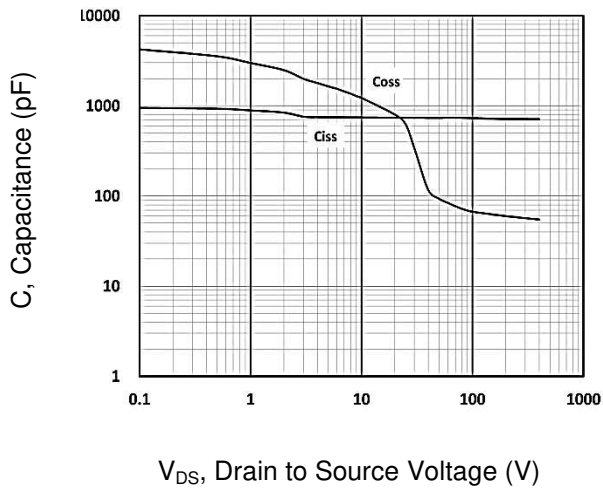
Source-Drain Diode Forward Current vs. Voltage



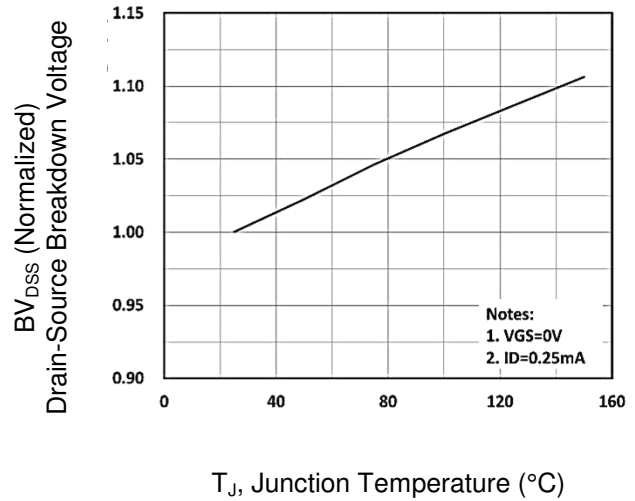
CHARACTERISTICS CURVES

($T_C = 25^\circ\text{C}$ unless otherwise noted)

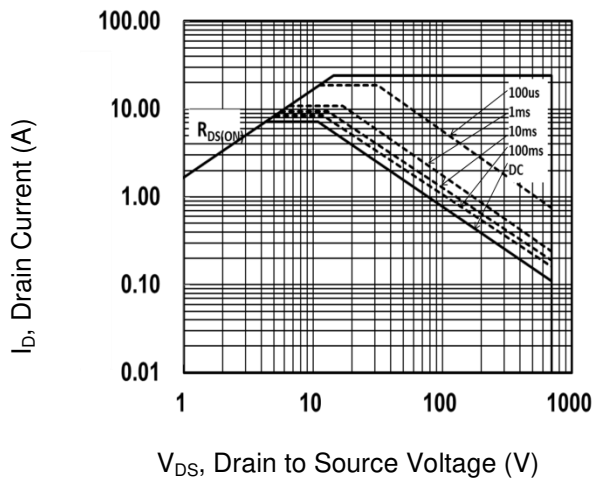
Capacitance vs. Drain-Source Voltage



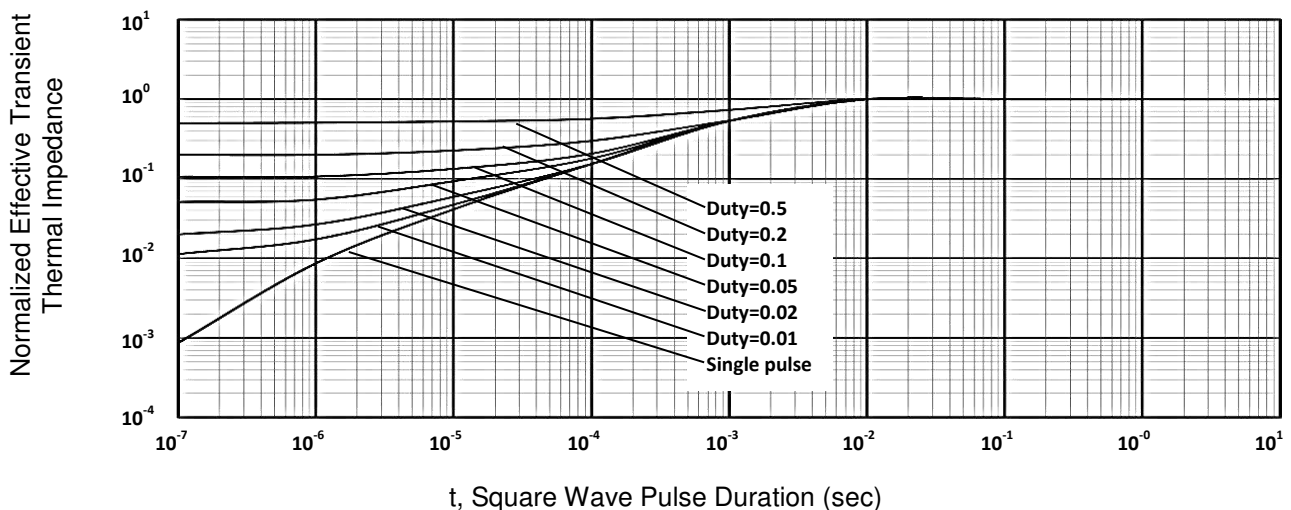
BV_{DSS} vs. Junction Temperature



Maximum Safe Operating Area, Junction-to-Case

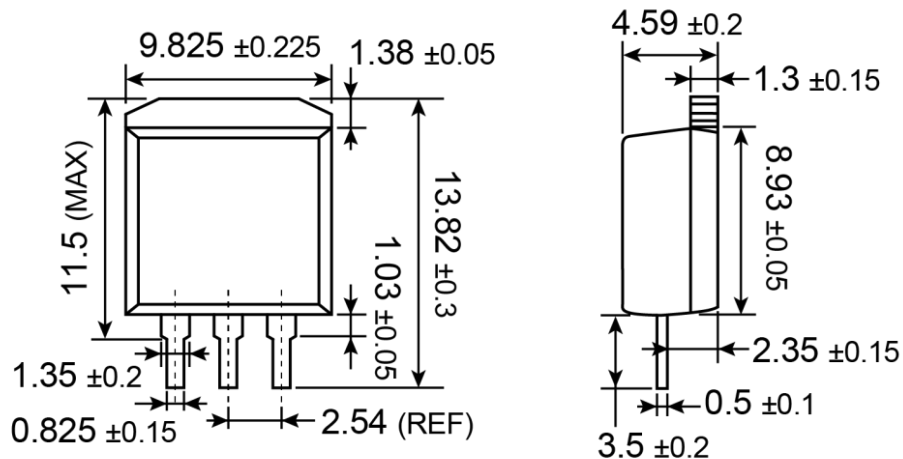


Normalized Thermal Transient Impedance, Junction-to-Case

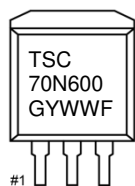


PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

TO-262S



MARKING DIAGRAM



- G** = Halogen Free
- Y** = Year Code
- WW** = Week Code (01~52)
- F** = Factory Code

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