N-Channel Power MOSFET

800V, 5.5A, 1.2Ω

FEATURES

- Super-Junction technology
- High performance due to small figure-of-merit
- High ruggedness performance
- High commutation performance
- Pb-free plating
- Compliant to RoHS Directive 2011/65/EU and in accordance to WEE 2002/96/EC
- Halogen-free according to IEC 61249-2-21 definition

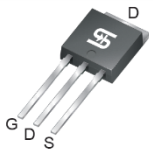
KEY PERFORMANCE PARAMETERS		
PARAMETER	**VALUE**	**UNIT**
V_{DS}	800	V
$R_{DS(on)}$ (max)	1.2	Ω
Q_g	19.4	nC

Pb-Free RoHS COMPLIANT HALOGEN FREE

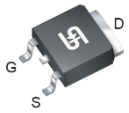
APPLICATION

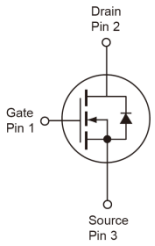
- Power Supply
- Lighting

TO-251 (IPAK)



TO-252 (DPAK)





Notes: MSL 3 (Moisture Sensitivity Level) for TO-252 (D-PAK) per J-STD-020

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C unless otherwise noted)				
PARAMETER		**SYMBOL**	**LIMIT**	**UNIT**
Drain-Source Voltage		V_{DS}	800	V
Gate-Source Voltage		V_{GS}	±30	V
Continuous Drain Current (Note 1)	T_C = 25°C	I_D	5.5	A
	T_C = 100°C		3.4	A
Pulsed Drain Current (Note 2)		I_{DM}	16.5	A
Total Power Dissipation @ T_C = 25°C		P_{DTOT}	110	W
Single Pulsed Avalanche Energy (Note 3)		E_{AS}	121	mJ
Single Pulsed Avalanche Current (Note 3)		I_{AS}	2.2	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	$R_{\Theta JC}$	1.14	°C/W
Junction to Ambient Thermal Resistance	$R_{\Theta JA}$	62	°C/W

Notes: $R_{\Theta JA}$ 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 (Note 4)						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	800	--	--	V
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(TH)}$	2	--	4	V
Gate Body Leakage	V_{GS} = ±30V, V_{DS} = 0V	I_{GSS}	--	--	±100	nA
Zero Gate Voltage Drain Current	V_{DS} = 800V, V_{GS} = 0V	I_{DSS}	--	--	1	μA
Drain-Source On-State Resistance	V_{GS} = 10V, I_D = 2.75A	$R_{DS(on)}$	--	0.9	1.2	Ω
Dynamic (Note 5)						
Total Gate Charge	V_{DS} = 380V, I_D = 5.5A, V_{GS} = 10V	Q_g	--	19.4	--	nC
Gate-Source Charge		Q_{gs}	--	3.4	--	
Gate-Drain Charge		Q_{gd}	--	9.6	--	
Input Capacitance	V_{DS} = 100V, V_{GS} = 0V, f = 1.0MHz	C_{iss}	--	685	--	pF
Output Capacitance		C_{oss}	--	62	--	
Gate Resistance	F = 1MHz, open drain	R_g	--	3.4	--	Ω
Switching (Note 6)						
Turn-On Delay Time	V_{DD} = 380V, R_{GEN} = 25Ω, I_D = 5.5A, V_{GS} = 10V,	$t_{d(on)}$	--	22	--	ns
Turn-On Rise Time		t_r	--	11	--	
Turn-Off Delay Time		$t_{d(off)}$	--	55	--	
Turn-Off Fall Time		t_f	--	10	--	
Source-Drain Diode (Note 4)						
Forward On Voltage	I_S = 5.5A, V_{GS} = 0V	V_{SD}	--	--	1.4	V
Reverse Recovery Time	V_R = 100V, I_S = 5.5A dI$_F$/dt = 100A/μs	t_{rr}	--	240	--	ns
Reverse Recovery Charge		Q_{rr}	--	2.5	--	μC

Notes:

1. Current limited by package.
2. Pulse width limited by the maximum junction temperature.
3. L = 50mH, I_{AS} = 2.2A, V_{DD} = 50V, R_G = 25Ω, Starting T_J = 25°C
4. Pulse test: PW ≤ 300μs, duty cycle ≤ 2%.
5. For DESIGN AID ONLY, not subject to production testing.
6. Switching time is essentially independent of operating temperature.

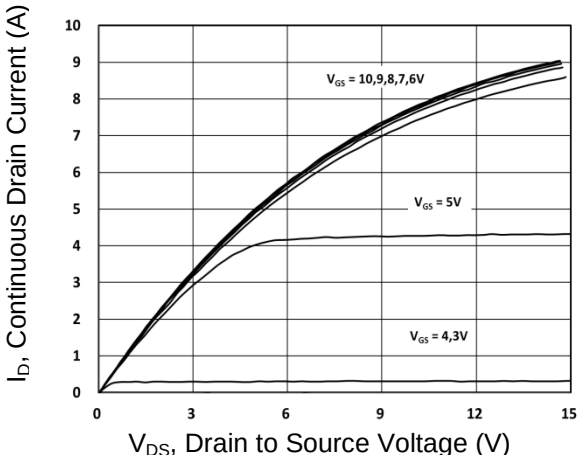
ORDERING INFORMATION

PART NO.	PACKAGE	PACKING
TSM80N1R2CH C5G	TO-251 (IPAK)	75pcs / Tube
TSM80N1R2CP ROG	TO-252 (DPAK)	2,500pcs / 13” Reel

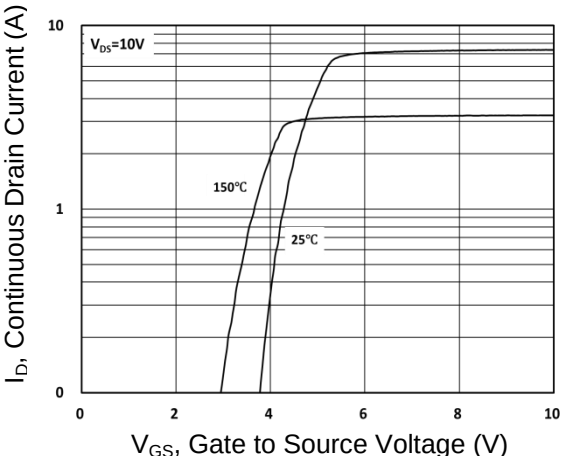
CHARACTERISTICS CURVES

(T_C = 25°C unless otherwise noted)

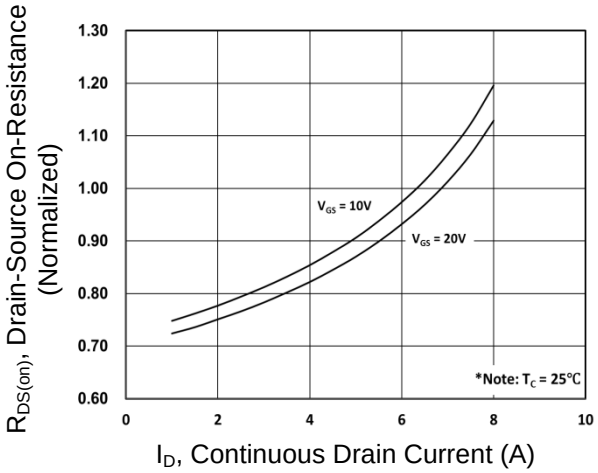
Output Characteristics



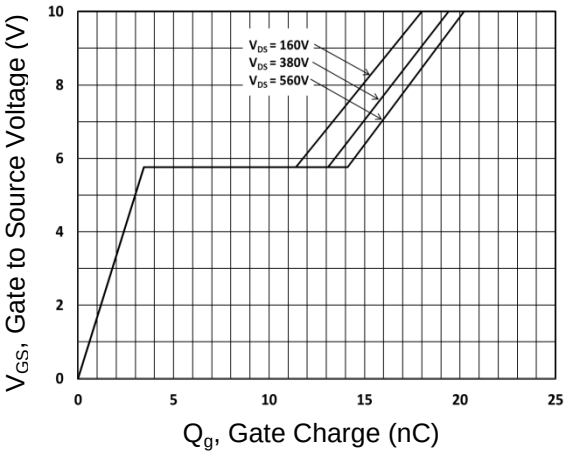
Transfer Characteristics



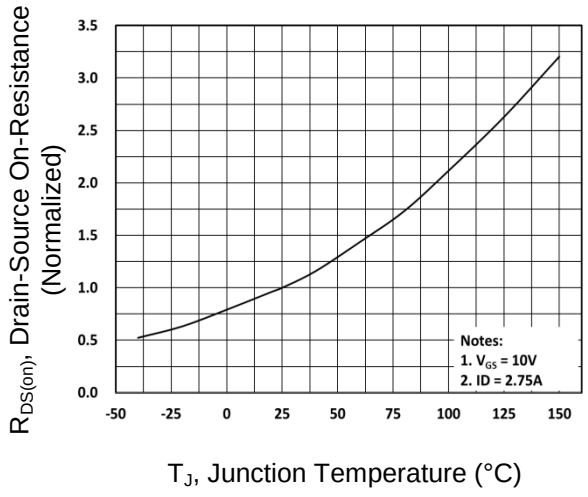
On-Resistance vs. Drain Current



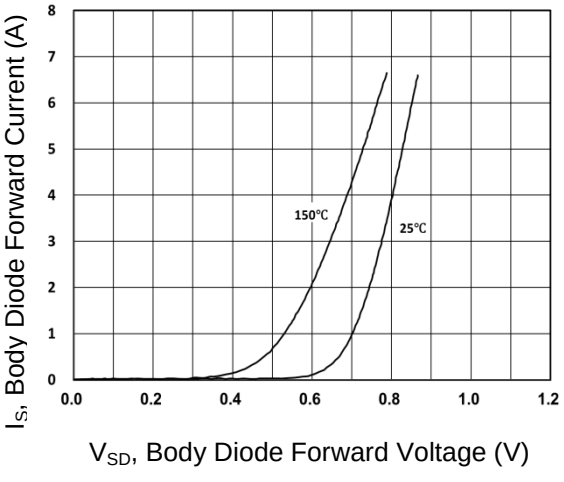
Gate-Source Voltage vs. Gate Charge



On-Resistance vs. Junction Temperature



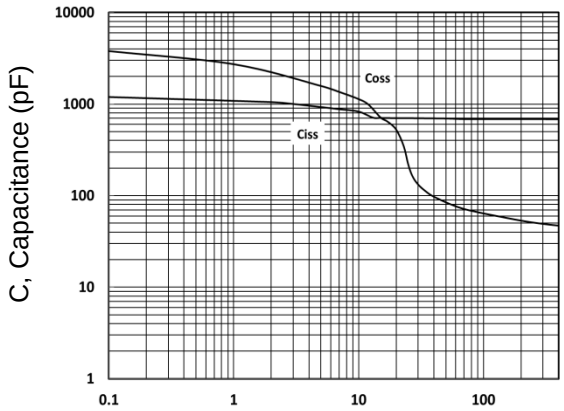
Source-Drain Diode Forward Current vs. Voltage



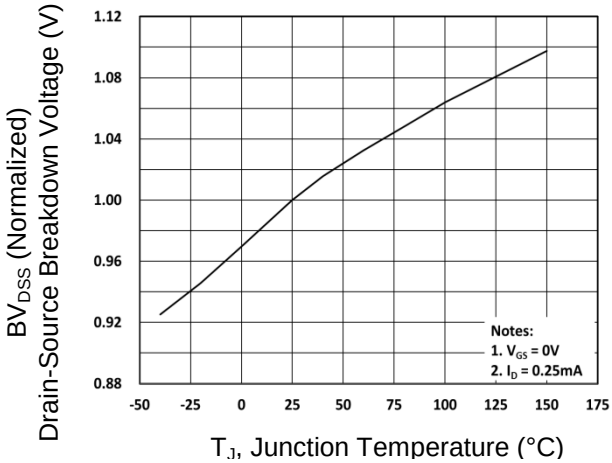
CHARACTERISTICS CURVES

(T_C = 25°C unless otherwise noted)

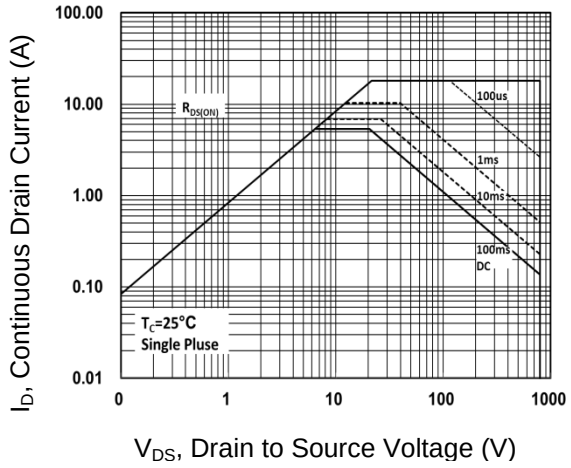
Capacitance vs. Drain-Source Voltage



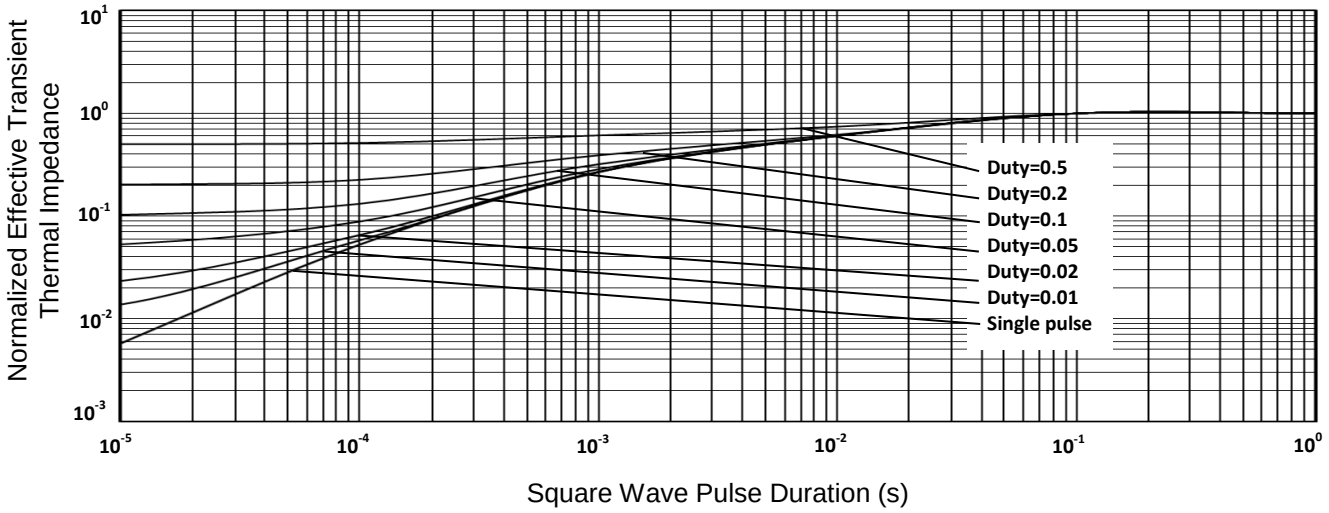
BV_{DSS} vs. Junction Temperature



Maximum Safe Operating Area

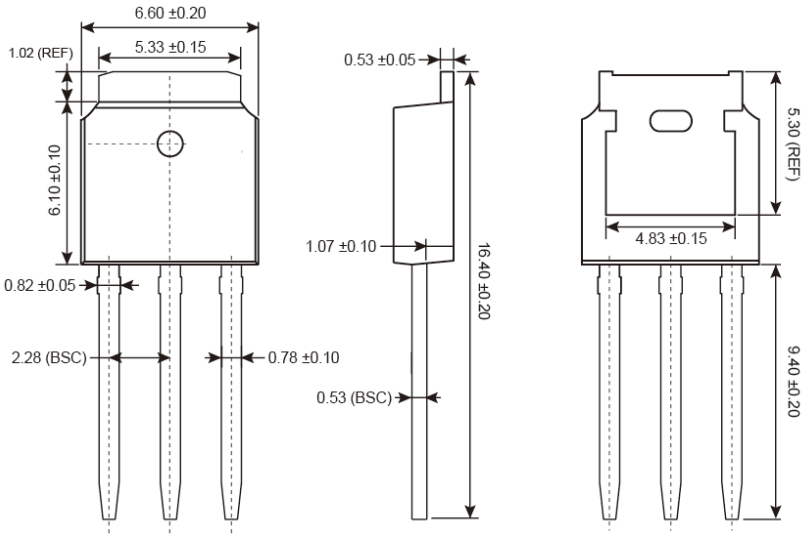


Normalized Thermal Transient Impedance, Junction-to-Case

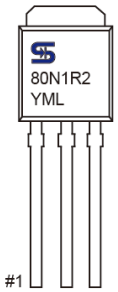


PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

TO-251 (IPAK)



MARKING DIAGRAM



Y = Year Code

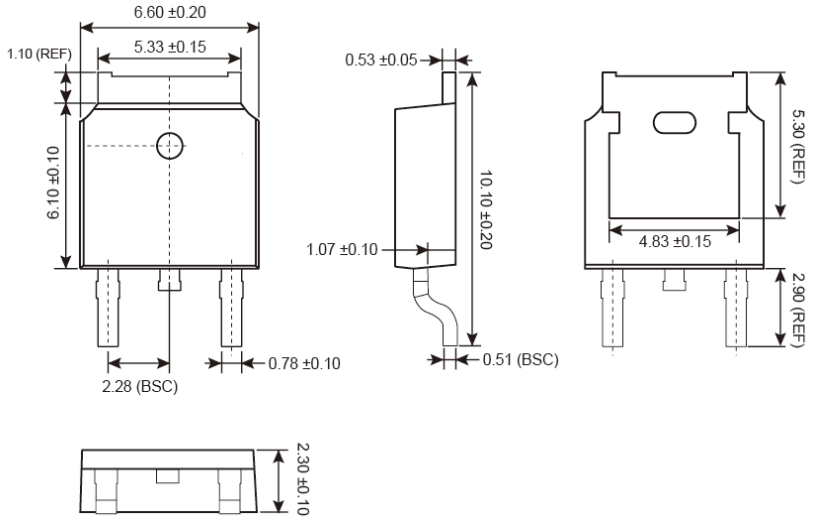
M = Month Code for Halogen Free Product

O	=Jan	**P**	=Feb	**Q**	=Mar	**R**	=Apr
S	=May	**T**	=Jun	**U**	=Jul	**V**	=Aug
W	=Sep	**X**	=Oct	**Y**	=Nov	**Z**	=Dec

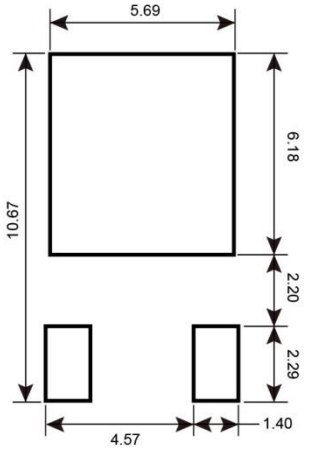
L = Lot Code (1~9, A~Z)

PACKAGE OUTLINE DIMENSIONS (Unit: Millimeters)

TO-252 (DPAK)



SUGGESTED PAD LAYOUT (Unit: Millimeters)



MARKING DIAGRAM

Y = Year Code

M = Month Code for Halogen Free Product

O	=Jan	**P**	=Feb	**Q**	=Mar	**R**	=Apr
S	=May	**T**	=Jun	**U**	=Jul	**V**	=Aug
W	=Sep	**X**	=Oct	**Y**	=Nov	**Z**	=Dec

L = Lot Code (1~9, A~Z)

Notice

Specifications of the products displayed herein are subject to change without notice. TSC or anyone on its behalf, assumes no responsibility or liability for any errors or inaccuracies.

Information contained herein is intended to provide a product description only. No license, express or implied, to any intellectual property rights is granted by this document. Except as provided in TSC's terms and conditions of sale for such products, TSC assumes no liability whatsoever, and disclaims any express or implied warranty, relating to sale and/or use of TSC products including liability or warranties relating to fitness for a particular purpose, merchantability, or infringement of any patent, copyright, or other intellectual property right.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications. Customers using or selling these products for use in such applications do so at their own risk and agree to fully indemnify TSC for any damages resulting from such improper use or sale.

X-ON Electronics

Largest Supplier of Electrical and Electronic Components

Click to view similar products for MOSFET ***category:***

Click to view products by Taiwan Semiconductor ***manufacturer:***

Other Similar products are found below :

614233C 648584F IRFD120 JANTX2N5237 FCA20N60_F109 FDZ595PZ 2SK2545(Q,T) 405094E 423220D TPCC8103,L1Q(CM MIC4420CM-TR VN1206L SBVS138LT1G 614234A 715780A NTNS3166NZT5G SSM6J414TU,LF(T 751625C BUK954R8-60E DMN3404LQ-7 NTE6400 SQJ402EP-T1-GE3 2SK2614(TE16L1,Q) 2N7002KW-FAI DMN1017UCP3-7 EFC2J004NUZTDG ECH8691-TL-W FCAB21350L1 P85W28HP2F-7071 DMN1053UCP4-7 NTE221 NTE2384 NTE2903 NTE2941 NTE2945 NTE2946 NTE2960 NTE2967 NTE2969 NTE2976 NTE455 NTE6400A NTE2910 NTE2916 NTE2956 NTE2911 DMN2080UCB4-7 TK10A80W,S4X(S SSM6P69NU,LF DMP22D4UFO-7B