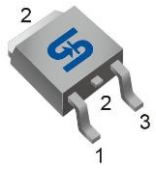
TSM060N03ECP

30V N-Channel Power MOSFET

TO-252 (DPAK)



Pin Definition:
1. Gate
2. Drain
3. Source

Key Parameter Performance

Parameter		Value	Unit
V_{DS}		30	V
$R_{DS(on)}$ (max)	V_{GS} = 10V	6	mΩ
	V_{GS} = 4.5V	9	
Q_g		11.1	nC

Features

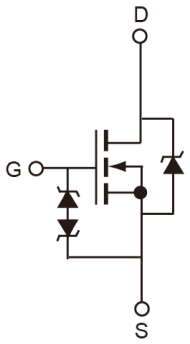
- Fast switching
- G-S ESD Protection Diode Embedded

Ordering Information

Ordering code	Package	Packing
TSM060N03ECP ROG	TO-252	2.5kpcs / 13” Reel

Note: Halogen-free according to IEC 61249-2-21 definition

Block Diagram



N-Channel MOSFET with ESD protection

Absolute Maximum Ratings (T_C=25°C unless otherwise noted)

Parameter		Symbol	Limit	Unit
Drain-Source Voltage		V_{DS}	30	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	T_C=25ºC	I_D	70	A
	T_C=100ºC		44	A
Pulsed Drain Current (Note 1)		I_{DM}	280	A
Single Pulse Avalanche Energy (Note 2)		E_{AS}	88	mJ
Single Pulse Avalanche Current (Note 2)		I_{AS}	42	A
Total Power Dissipation	@ T_C=25°C	P_D	54	W
	Derate above T_C=25°C		0.43	W/ºC
Operating Junction Temperature		T_J	150	ºC
Storage Temperature Range		T_{STG}	-55 to +150	°C

Thermal Performance

Parameter	Symbol	Limit	Unit
Thermal Resistance - Junction to Case	$R_{\Theta JC}$	2.3	°C/W
Thermal Resistance - Junction to Ambient	$R_{\Theta JA}$	62	°C/W

TSM060N03ECP

30V N-Channel Power MOSFET

Electrical Specifications (T_C=25°C unless otherwise noted)

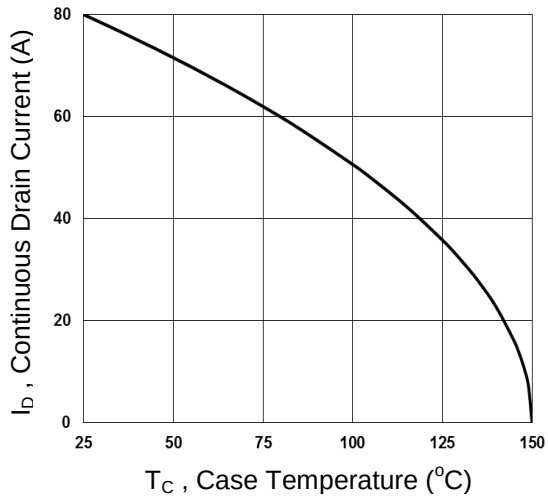
Parameter	Conditions	Symbol	Min	Typ	Max	Unit
Static						
Drain-Source Breakdown Voltage	V_{GS} = 0V, I_D = 250μA	BV_{DSS}	30	--	--	V
Drain-Source On-State Resistance	V_{GS} = 10V, I_D = 20A	$R_{DS(ON)}$	--	4.8	6	mΩ
	V_{GS} = 4.5V, I_D = 10A		--	6.5	9	
Gate Threshold Voltage	V_{DS} = V_{GS}, I_D = 250μA	$V_{GS(TH)}$	1	1.6	2.5	V
Zero Gate Voltage Drain Current	V_{DS} = 30V, V_{GS} = 0V	I_{DSS}	--	--	1	μA
	V_{DS} = 24V, T_J = 125ºC		--	--	10	
Gate Body Leakage	V_{GS} = ±20V, V_{DS} = 0V	I_{GSS}	--	--	±10	μA
Forward Transconductance	V_{DS} = 10V, I_D = 10A	g_{fs}	--	12.5	--	S
Dynamic						
Total Gate Charge(Note 3,4)	V_{DS} = 15V, I_D = 20A, V_{GS} = 4.5V	Q_g	--	11.1	--	nC
Gate-Source Charge(Note 3,4)		Q_{gs}	--	1.85	--	
Gate-Drain Charge(Note 3,4)		Q_{gd}	--	6.8	--	
Input Capacitance	V_{DS} = 25V, V_{GS} = 0V, f = 1MHz	C_{iss}	--	1210	--	pF
Output Capacitance		C_{oss}	--	190	--	
Reverse Transfer Capacitance		C_{rss}	--	100	--	
Gate Resistance	f = 1MHz	R_g	--	2.5	--	Ω
Switching						
Turn-On Delay Time(Note 3,4)	V_{DD}=15V , V_{GS}=10V , R_G=3.3Ω, I_D=-15A	$t_{d(on)}$	--	7.5	--	ns
Turn-On Rise Time(Note 3,4)		t_r	--	14.5	--	
Turn-Off Delay Time(Note 3,4)		$t_{d(off)}$	--	35.2	--	
Turn-Off Fall Time(Note 3,4)		t_f	--	9.6	--	
Source-Drain Diode Ratings and Characteristic						
Continuous Drain-Source Diode		I_S	--	--	70	A
Pulse Drain-Source Diode		I_{SM}	--	--	280	A
Diode-Source Forward Voltage	V_{GS} = 0V, I_S = 1A	V_{SD}	--	--	1	V

Note:

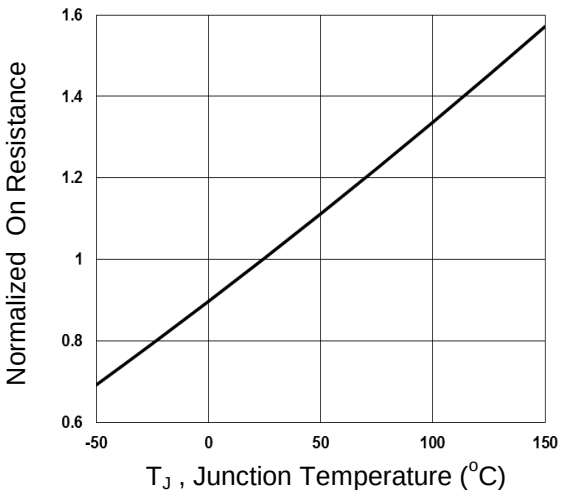
1. Repetitive Rating : Pulsed width limited by maximum junction temperature.
2. V_{DD}=25V,V_{GS}=10V,L=0.1mH,I_{AS}=42A.,R_G=25Ω,Starting T_J=25°C
3. The data tested by pulsed , pulse width ≤300μs, duty cycle ≤2%
4. Essentially independent of operating temperature.

Electrical Characteristics Curve

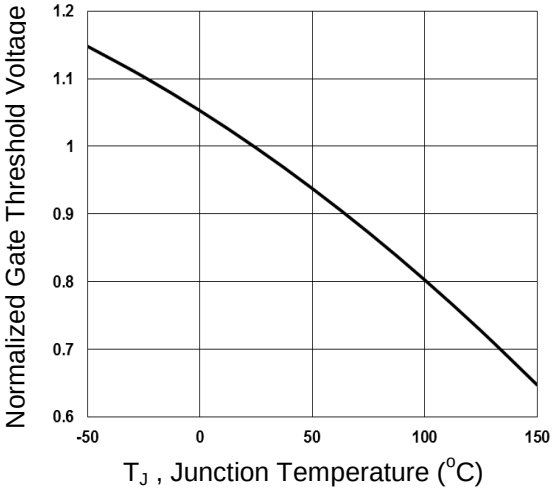
Continuous Drain Current vs. Tc



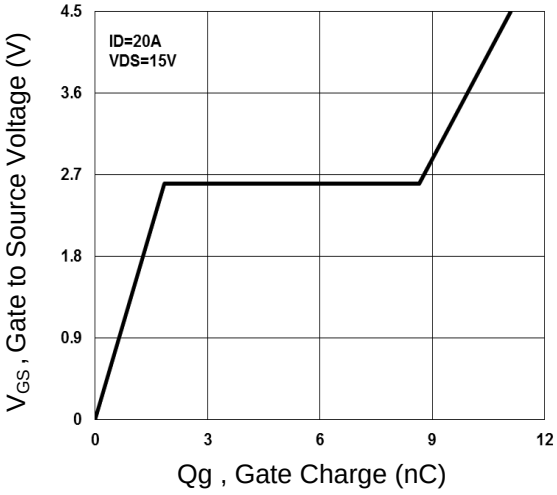
Normalized RDSON vs. T_J



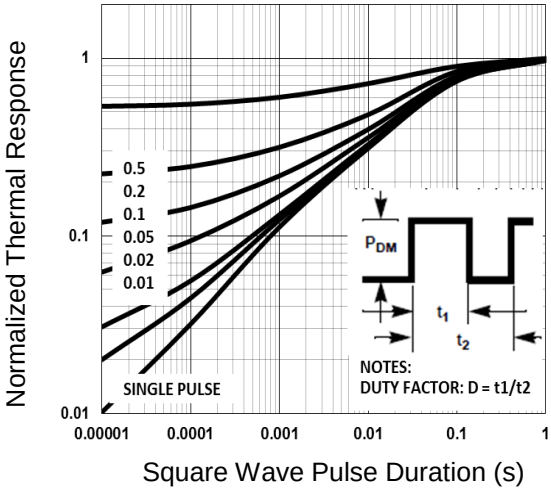
Normalized V_{th} vs. T_J



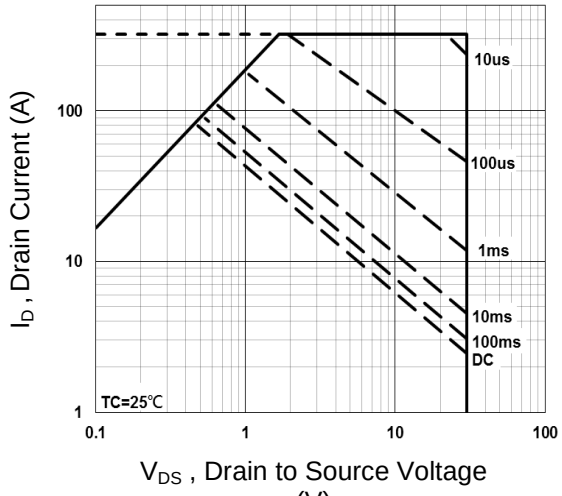
Gate Charge Waveform



Normalized Transient Impedance



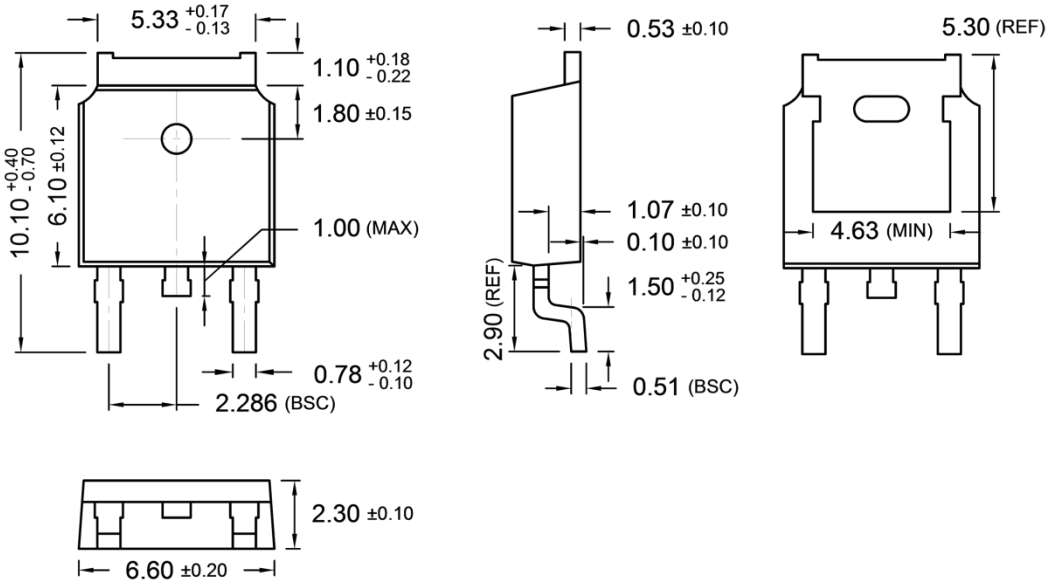
Maximum Safe Operation Area



TSM060N03ECP

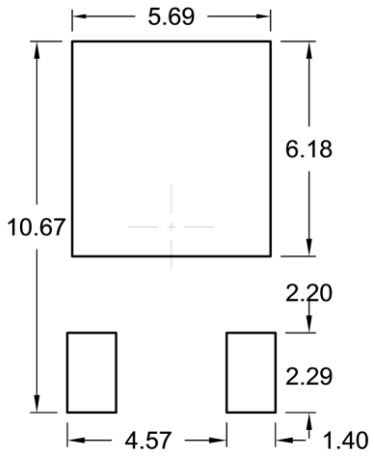
30V N-Channel Power MOSFET

TO-252 Mechanical Drawing

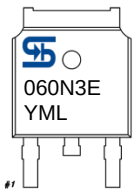


Unit: Millimeters

SUGGESTED PAD LAYOUT (Unit: Millimeters)



Marking Diagram



Y = Year Code

M = Month Code

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.

ENTEGRECİ

Bu belge www.entegreci.com üzerinden sunulmaktadır.

Elektronik komponent tedarikinde Entegreci

Entegreci, Eskişehir merkezli, Türkiye geneline satış yapan bir elektronik komponent mağazasıdır. Entegreler (IC), mikrodenetleyiciler, transistörler, diyotlar, pasif elemanlar, konnektörler, modüller ve geliştirme kartları tek adetten seri üretim adetlerine kadar satılır. Ürün sayfalarında güncel stok durumunu, fiyatı ve datasheet bağlantısını bulabilirsiniz.

Parça koduyla arama

Üretici parça numarasını yazın; stok ve fiyatı hemen görün.

www.entegreci.com

Ürün kategorileri

Entegreden kapasitöre tüm elektronik komponent kategorileri.

Kategorilere göz atın

Üreticiler

Aradığınız üreticinin ürünlerini tek sayfada inceleyin.

Üreticileri görün

Toplu alım ve teklif

Listede olmayan ya da yüksek adetli parçalar için teklif isteyin.

Teklif isteyin

www.entegreci.com | **destek@entegreci.com** | **0850 305 90 34**

Entegreci is an online electronic components store based in Türkiye. Search by manufacturer part number to see stock, prices and datasheets for integrated circuits, microcontrollers, transistors, passive components and connectors, or request a quote for parts that are not listed.

Bu sayfa Entegreci tarafından eklenmiştir. Belgenin önceki sayfaları asıl yayıncısına aittir ve içeriği değiştirilmemiştir; en güncel sürüm için belgenin yayıncısına başvurun.