SI2305A

P-Ch 20V Fast Switching MOSFETs

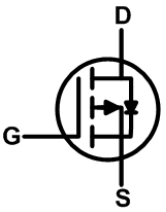
Description

The SI2305A is the high cell density trenched P-ch MOSFETs, which provide excellent RDSON and gate charge for most of the synchronous buck converter applications.

The SI2305A meet the RoHS and Green Product requirement with full function reliability approved.

Super Low Gate Charge
Green Device Available
Excellent CdV/dt effect decline
Advanced high cell density Trench technology

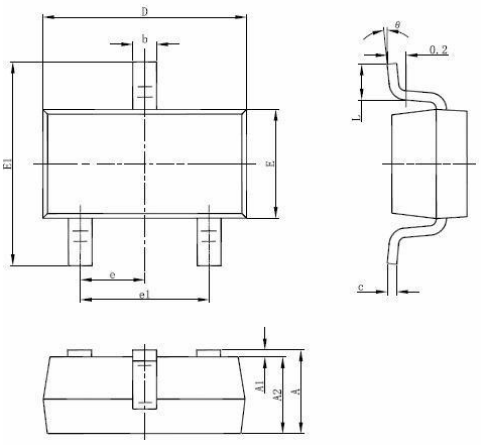




Product Summary

BVDSS	RDSON	ID
-20V	28mΩ	-5.0A

SOT-23-3L



Symbol	Dimensions In Millimeters		Dimensions In Inches	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950(BSC)		0.037(BSC)	
e1	1.800	2.000	0.071	0.079
L	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V_{DS}	Drain-Source Voltage	-20	V
V_{GS}	Gate-Source Voltage	±12	V
I_D@T_A=25℃	Continuous Drain Current, V_{GS} @ -4.5V[1]	-5.0	A
I_D@T_A=70℃	Continuous Drain Current, V_{GS} @ -4.5V[1]	-3.0	A
I_{DM}	Pulsed Drain Current[2]	-16	A
P_D@T_A=25℃	Total Power Dissipation[3]	1.31	W
P_D@T_A=70℃	Total Power Dissipation[3]	0.84	W
T_{STG}	Storage Temperature Range	-55 to 150	℃
T_J	Operating Junction Temperature Range	-55 to 150	℃

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1]	---	125	℃/W
$R_{\theta JA}$	Thermal Resistance Junction-Ambient [1] (t ≤10s)	---	---	℃/W

SI2305A

Electrical Characteristics (T_J=25℃ unless otherwise specified)

Symbol	Parameter	Test Condition	Min.	Typ.	Max.	Units
Off Characteristic						
$V_{(BR)DSS}$	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D= -250μA	-20	-	-	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}= -20V, V_{GS}=0V,	-	-	-1	μA
I_{GSS}	Gate to Body Leakage Current	V_{DS}=0V, V_{GS}= ±12V	-	-	±100	nA
On Characteristics						
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS}, I_D= -250μA	-0.4	-0.7	-1.0	V
$R_{DS(on)}$	Static Drain-Source on-Resistance note2	V_{GS}= -4.5V, I_D= -4.1A	-	28	45	mΩ
		V_{GS}= -2.5V, I_D= -3A	-	38	60	
Dynamic Characteristics						
C_{iss}	Input Capacitance	V_{DS}= -10V, V_{GS}=0V, f=1.0MHz	-	830	-	pF
C_{oss}	Output Capacitance		-	132	-	pF
C_{rss}	Reverse Transfer Capacitance		-	85	-	pF
Q_g	Total Gate Charge	V_{DS}= -10V, I_D= -2A, V_{GS}= -4.5V	-	8.8	-	nC
Q_{gs}	Gate-Source Charge		-	1.4	-	nC
Q_{gd}	Gate-Drain(“Miller”) Charge		-	1.9	-	nC
Switching Characteristics						
$t_{d(on)}$	Turn-on Delay Time	V_{DD}= -10V, I_D= -3.3A, R_G= 1Ω, V_{GEN}= -4.5V	-	10	-	ns
t_r	Turn-on Rise Time		-	32	-	ns
$t_{d(off)}$	Turn-off Delay Time		-	50	-	ns
t_f	Turn-off Fall Time		-	51	-	ns
Drain-Source Diode Characteristics and Maximum Ratings						
I_S	Maximum Continuous Drain to Source Diode Forward Current		-	-	-5.0	A
I_{SM}	Maximum Pulsed Drain to Source Diode Forward Current		-	-	-16	A
V_{SD}	Drain to Source Diode Forward Voltage	V_{GS}=0V, I_S= -4.1A	-	-	-1.2	V

Notes:1. Repetitive Rating: Pulse Width Limited by Maximum Junction Temperature

2. Pulse Test: Pulse Width≤300μs, Duty Cycle≤2%

RATING AND CHARACTERISTIC CURVES (SI2305A)

Figure1: Output Characteristics

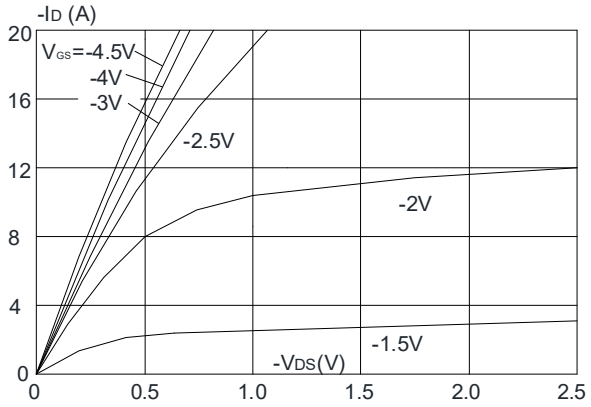


Figure 2: Typical Transfer Characteristics

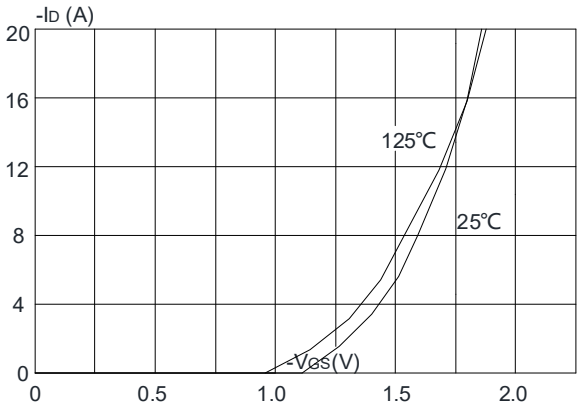
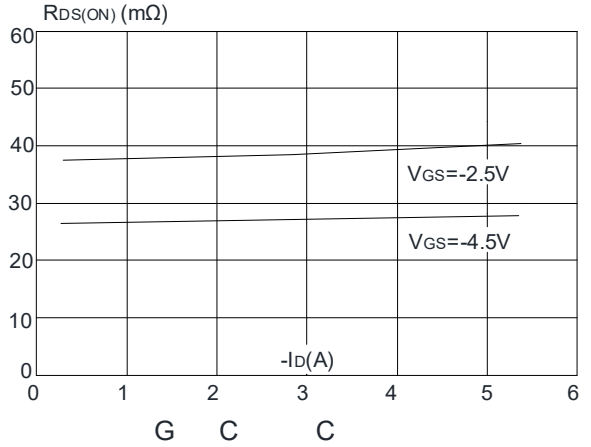


Figure 3: On-resistance vs. Drain Current



G C C

Figure 4: Body Diode Characteristics

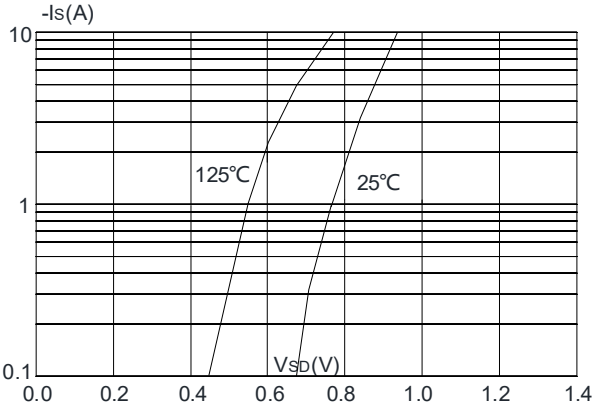


Figure 5: ate harge haracteristics

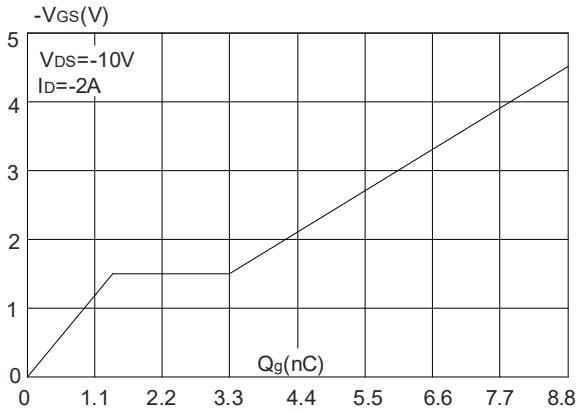
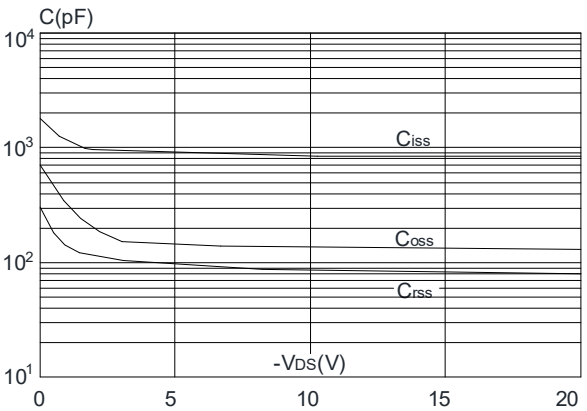


Figure 6: Capacitance Characteristics



RATING AND CHARACTERISTIC CURVES (SI2305A)

Figure 7: Normalized Breakdown Voltage vs. Junction Temperature

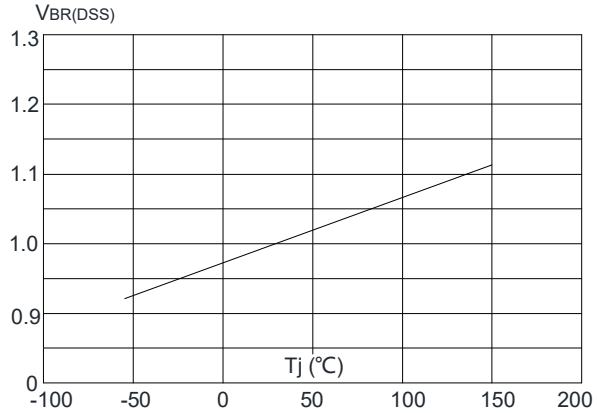


Figure 8: Normalized on Resistance vs. Junction Temperature

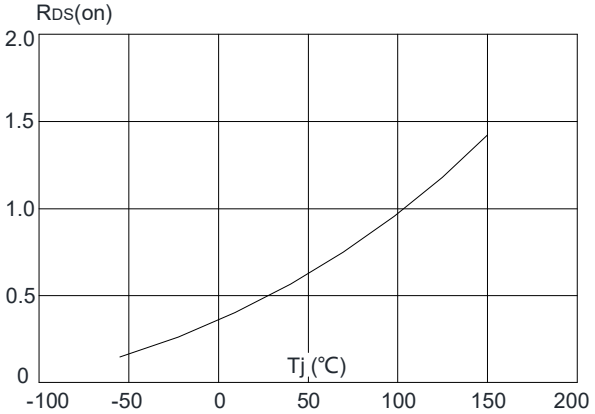


Figure 9: Maximum Safe Operating Area

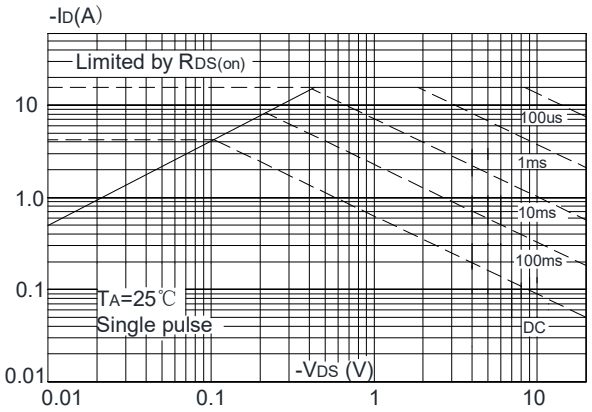


Figure 10: Maximum Continuous Drain Current vs. Ambient Temperature

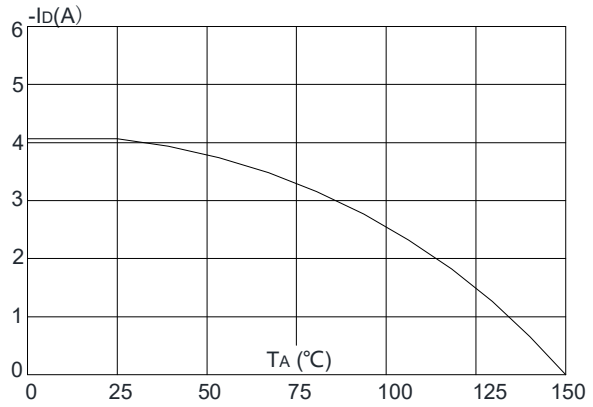
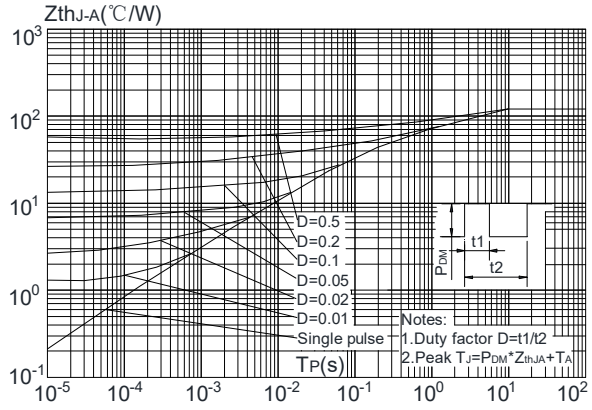


Figure.11: Maximum Effective Transient Thermal Impedance, Junction-to-Ambient



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.