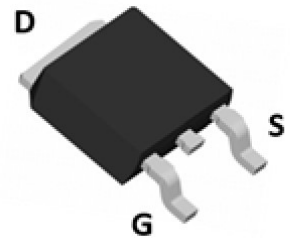
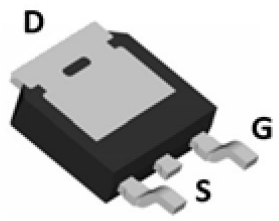
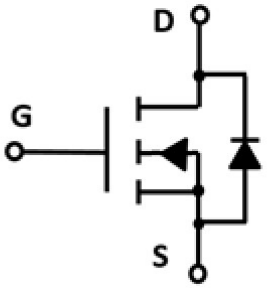
N-Channel Enhancement Mode Field Effect Transistor





TO-252



Product Summary

- V_{DS} 30V
- I_D 80A
- $R_{DS(ON)}$(at V_{GS}= 10V) ＜6.5mohm
- $R_{DS(ON)}$(at V_{GS}= 5V) ＜10mohm

Features

- High density cell design for ultra low Rdson
- Fully characterized avalanche voltage and current
- Good stability and uniformity with high E_{AS}
- Excellent package for good heat dissipation

Application

- Power switching application
- Hard switched and high frequency circuits
- Uninterruptible power supply

■ Absolute Maximum Ratings (T_A=25℃unless otherwise noted)

Parameter	Symbol	Limit	Unit
Drain-source Voltage	V_{DS}	30	V
Gate-source Voltage	V_{GS}	±20	V
Drain Current	I_D	80	A
Pulsed Drain Current [A]	I_{DM}	170	A
Single Pulse Avalanche Energy [B]	E_{AS}	306	mJ
Total Power Dissipation	P_D	83	W
Thermal Resistance Junction-to-Case	$R_{\theta JC}$	1.74	℃/ W
Junction and Storage Temperature Range	T_J ,T_{STG}	-55～+150	℃

■ Electrical Characteristics (T_J=25℃ unless otherwise noted)

Parameter	Symbol	Conditions	Min	Typ	Max	Units
Static Parameter						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS}= 0V, I_D=250μA	30			V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS}=30V,V_{GS}=0V			1	μA
Gate-Body Leakage Current	I_{GSS}	V_{GS}= ±20V, V_{DS}=0V			±100	nA
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS}= V_{GS}, I_D=250μA	1.0	1.6	2.5	V
Static Drain-Source On-Resistance	$R_{DS(ON)}$	V_{GS}= 10V, I_D=30A		4.5	6.5	mΩ
		V_{GS}= 5V, I_D=24A		6.8	10	
Diode Forward Voltage	V_{SD}	I_S=24A,V_{GS}=0V			1.3	V
Maximum Body-Diode Continuous Current	I_S				80	A
Dynamic Parameters						
Input Capacitance	C_{iss}	V_{DS}=15V,V_{GS}=0V,f=1MHZ		2015		pF
Output Capacitance	C_{oss}			250		
Reverse Transfer Capacitance	C_{rss}			230		
Switching Parameters						
Total Gate Charge	Q_g	V_{GS}=10V,V_{DS}=10V,I_D=30A		61		nC
Gate-Source Charge	Q_{gs}			8.2		
Gate-Drain Charge	Q_{gd}			7.8		
Reverse Recovery Charge	Q_{rr}	I_F=80A, di/dt=100A/us		32		
Reverse Recovery Time	t_{rr}			12		ns
Turn-on Delay Time	$t_{D(on)}$	V_{GS}=10V,V_{DD}=10V,R_G=2.7Ω , I_D=30A		20		
Turn-on Rise Time	t_r			15		
Turn-off Delay Time	$t_{D(off)}$			60		
Turn-off fall Time	t_f			10		

A. Pulse Test: Pulse Width≤300us,Duty cycle ≤2%.
B. E_{AS} condition: Tj=25℃,VDD=15V,VG=10V,L=0.5mH,Rg=25Ω, IAS=35A

■ Typical Performance Characteristics

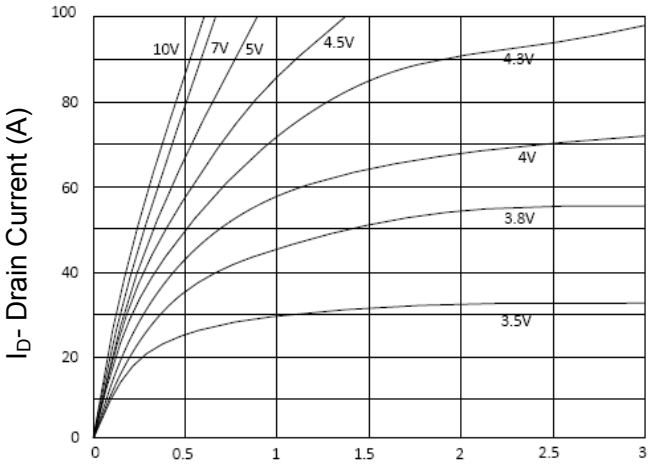


Figure 1 Output Characteristics

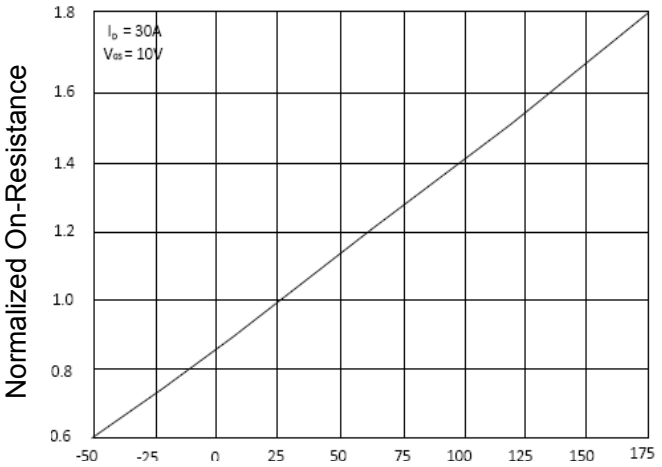


Figure 2 Rdson-JunctionTemperature

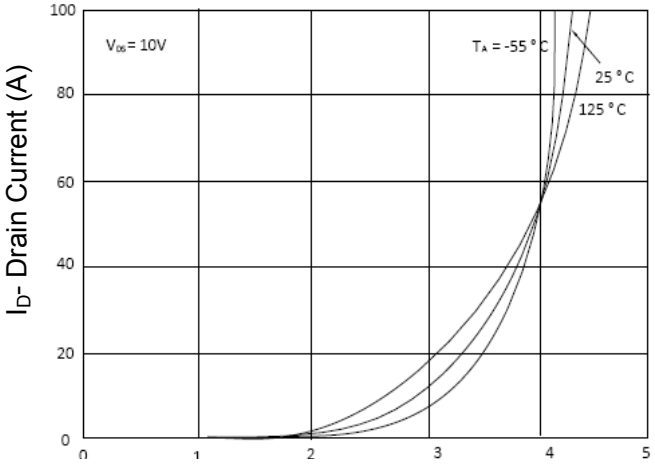


Figure 3 Transfer Characteristics

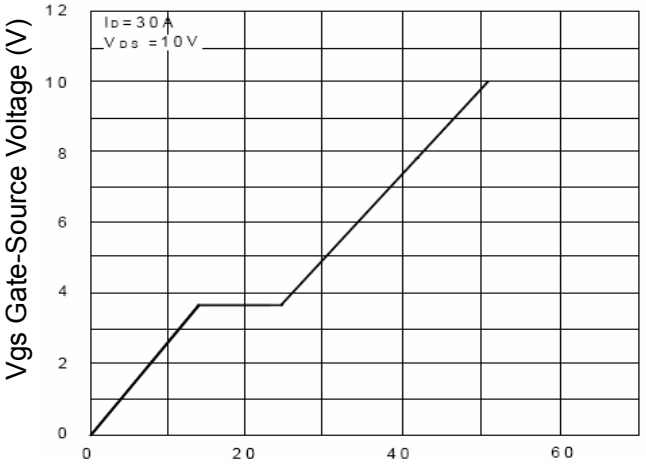


Figure 4 Gate Charge

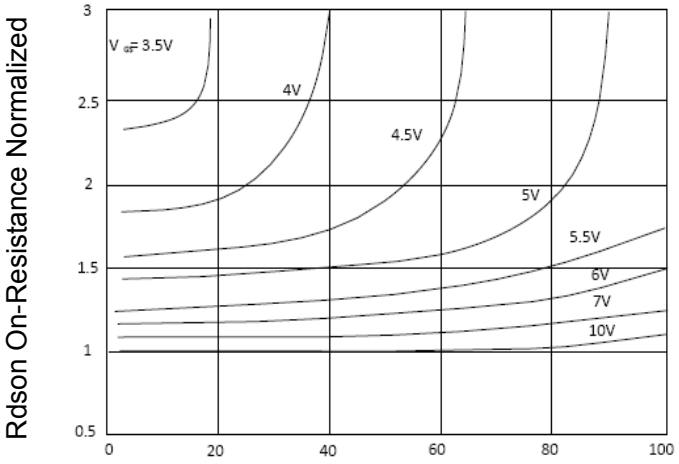


Figure 5 Rdson- Drain Current

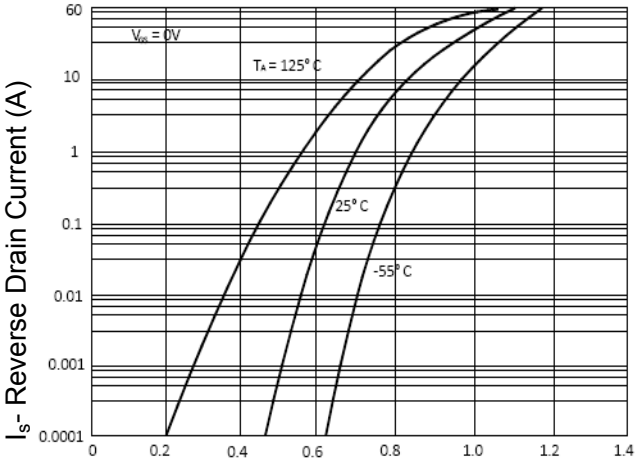


Figure 6 Source- Drain Diode Forward

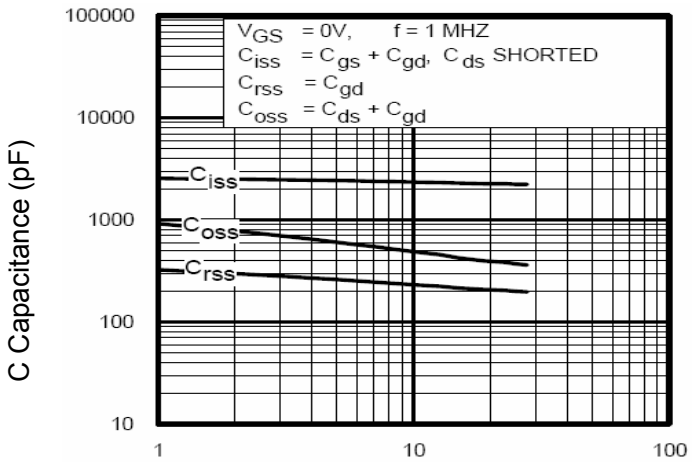


Figure 7 Capacitance vs Vds

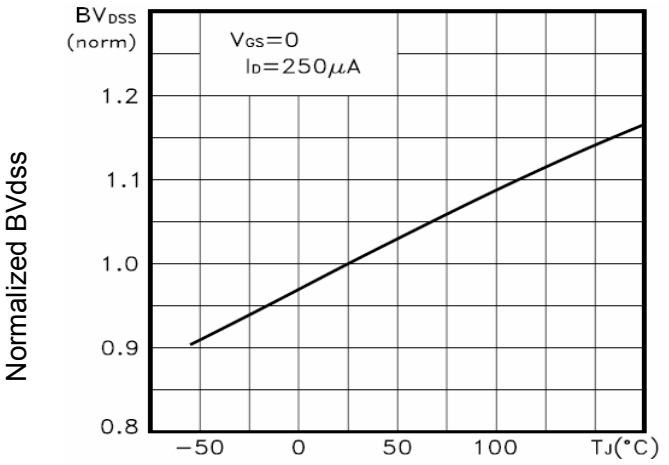


Figure 8 BV_{DSS} vs Junction Temperature

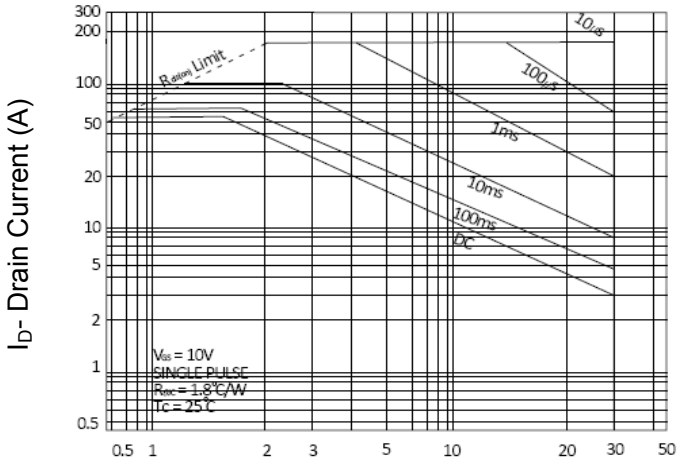


Figure 9 Safe Operation Area

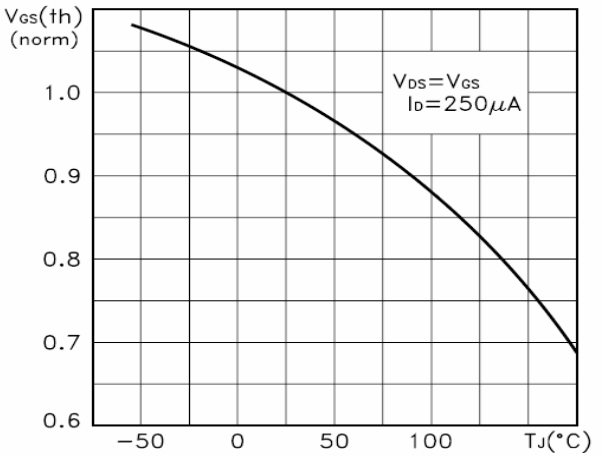
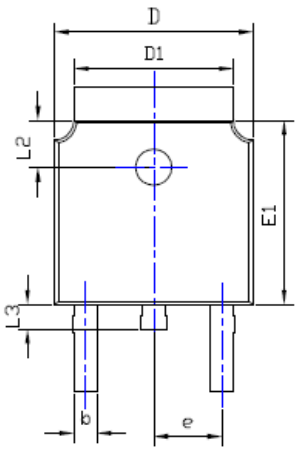
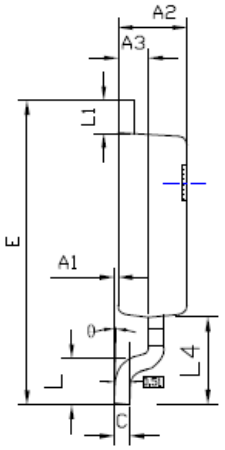


Figure 10 $V_{GS(th)}$ vs Junction Temperature

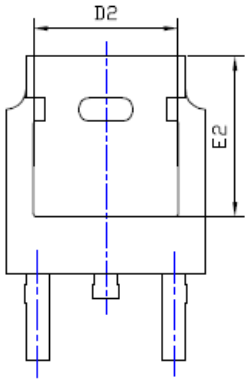
■ TO-252 Package information



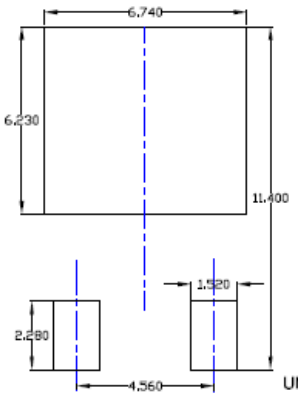
TOP VIEW



SIDE VIEW



BOTTOM VIEW



UNIT: mm

SUGGESTED SOLDER PAD LAYOUT

SYMBOL	DIMENSIONS					
	INCHES			Millimeter		
	MIN.	NOM.	MAX.	MIN.	NOM.	MAX.
A1	0.000	---	0.008	0.000	---	0.200
A2	0.087	0.091	0.094	2.200	2.300	2.400
A3	0.035	0.039	0.043	0.900	1.000	1.100
b	0.026	0.030	0.034	0.660	0.760	0.860
c	0.018	0.020	0.023	0.460	0.520	0.580
D	0.256	0.260	0.264	6.500	6.600	6.700
D1	0.203	0.209	0.215	5.150	5.300	5.450
D2	0.181	0.189	0.195	4.600	4.800	4.950
E	0.390	0.398	0.406	9.900	10.100	10.300
E1	0.236	0.240	0.244	6.000	6.100	6.200
E2	0.203	0.209	0.215	5.150	5.300	5.450
e	0.090BSC			2.286BSC		
L	0.049	0.059	0.069	1.250	1.500	1.750
L1	0.035	---	0.050	0.900	---	1.270
L2	0.055	---	0.075	1.400	---	1.900
L3	0.240	0.310	0.039	0.600	0.800	1.000
L4	0.114REF			2.900REF		
θ	0°	---	10°	0°	---	10°

NOTE:
1.PACKAGE BODY SIZES EXCLUDE MOLD FLASH AND GATE BURRS.
2.TOLERANCE 0.1mm UNLESS OTHERWISE SPECIFIED.
3.THE PAD LAYOUT IS FOR REFERENCE PURPOSES ONLY.

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.