Features

- High Speed Smooth Switching Device for Hard and Soft Switching
- $V_{ce(sat)}$ with Positive Temperature Coefficient
- High Ruggedness, Good Thermal Stability
- Very Tight Parameter Distribution
- Halogen Free. “Green” Device (Note 1)
- Epoxy Meets UL 94 V-0 Flammability Rating
- Lead Free Finish/RoHS Compliant ("P" Suffix Designates RoHS Compliant. See Ordering Information)

Trench and Field Stop IGBT 650V 30A

Maximum Ratings

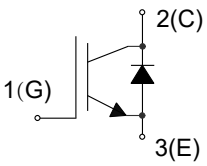
- Operating Junction Temperature Range : -40°C to +175°C
- Storage Temperature Range: -55°C to +150°C
- IGBT Thermal Resistance: 0.8°C/W Junction to Case
- Diode Thermal Resistance: 1.0°C/W Junction to Case
- Thermal Resistance: 40°C/W Junction to Ambient

Parameter		Symbol	Rating	Unit
Collector-Emitter Voltage		V_{CE}	650	V
DC Collector Current(2)	T_C=25°C	I_C	60	A
	T_C=100°C		30	
Pulsed Collector Current (3)		$I_{C,pluse}$	120	A
Diode Forward Current (2)	T_C=25°C	I_F	60	A
	T_C=100°C		30	
Diode Pulsed Current (3)		$I_{F,pluse}$	120	A
Gate-Emitter Voltage		V_{GE}	±20	V
Transient Gate-Emitter Voltage(4)			±30	
Short Circuit Withstand Time (5) V_{GE}=15V, V_{CC}=400V, V_{CEM}≤650V		t_{SC}	5	μs
Power Dissipation	T_C=25°C	P_D	187	W
	T_C=100°C		93	

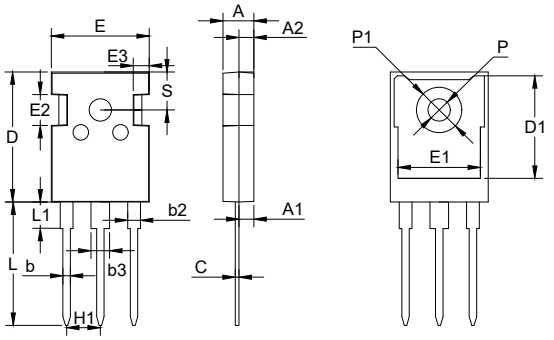
Note:

1. Halogen free "Green” products are defined as those which contain <900ppm bromine, <900ppm chlorine (<1500ppm total Br + Cl) and <1000ppm antimony compounds.
2. Limited by T_{Jmax}.
3. T_p limited by T_{Jmax}.
4. T_p≤10us, Duty Cycle<1%
5. Allowed number of short circuits: <1000; time between short circuits: >1s.

Internal Structure



TO-247AB



DIMENSIONS					
DIM	INCHES		MM		NOTE
	MIN	MAX	MIN	MAX	
A	0.189	0.205	4.80	5.20	
A1	0.087	0.103	2.21	2.61	
A2	0.073	0.085	1.85	2.15	
b	0.039	0.055	1.00	1.40	
b2	0.075	0.087	1.91	2.21	
C	0.020	0.028	0.50	0.70	
D	0.815	0.839	20.70	21.30	
D1	0.640	0.663	16.25	16.85	
E	0.610	0.634	15.50	16.10	
E1	0.512	0.535	13.00	13.60	
E2	0.189	0.205	4.80	5.20	
E3	0.091	0.106	2.30	2.70	
L	0.772	0.796	19.62	20.22	
L1	-	0.169	-	4.30	
P	0.134	0.150	3.40	3.80	Φ
P1		0.287	-	7.30	Φ
S	0.242		6.15		TYP
H1	0.214		5.44		TYP
b3	0.110	0.126	2.80	3.20	

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Collector-Emitter Breakdown Voltage	$V_{(BR)CES}$	V_{GE}=0V, I_C=250μA	650			V
Collector-Emitter Saturation Voltage	$V_{CE(sat)}$	V_{GE}=15V, I_C=30A, T_J=25℃		1.80	2.10	V
		V_{GE}=15V, I_C=30A, T_J=125℃		2.10		
		V_{GE}=15V, I_C=30A, T_J=150℃		2.20		
G-E Threshold Voltage	$V_{GE(th)}$	I_C=250μA, V_{CE}=V_{GE}	4.5	5.0	5.5	V
C-E Leakage Current	I_{CES}	V_{CE}=650V, V_{GE}=0V,T_J=25℃			1	mA
G-E Leakage Current	I_{GES}	V_{CE}=0V, V_{GE}=±20V			100	nA
Dynamic Characteristics						
Input Capacitance	C_{ies}	V_{CE}=25V,V_{GE}=0V,f=1MHz		1.6		nF
Reverse Transfer Capacitance	C_{res}			0.09		
Gate Charge	Q_g	V_{CC}=300V,I_C=30A,V_{GE}=15V		0.15		uC
IGBT Switching Characteristics						
Turn-On Delay Time	$td_{(on)}$	V_{CC}=300V, I_C=30A, V_{GE}=-15/15V, R_G=33Ω,L_S=60nH, T_J=25℃		40		ns
Rise Time	t_r			72		
Turn-Off Delay Time	$td_{(off)}$			120		
Fall Time	t_f			30		
Turn-On Energy	E_{on}			0.92		mJ
Turn-Off Energy	E_{off}			0.45		
Turn-On Delay Time	$td_{(on)}$	V_{CC}=300V, I_C=30A, V_{GE}=-15/15V, R_G=33Ω,L_S=60nH, T_J=125℃		45		ns
Rise Time	t_r			75		
Turn-Off Delay Time	$td_{(off)}$			180		
Fall Time	t_f			35		
Turn-On Energy	E_{on}			1.35		mJ
Turn-Off Energy	E_{off}			0.68		
Turn-On Delay Time	$td_{(on)}$	V_{CC}=300V, I_C=30A, V_{GE}=-15/15V, R_G=33Ω,L_S=60nH, T_J=150℃		48		ns
Rise Time	t_r			78		
Turn-Off Delay Time	$td_{(off)}$			195		
Fall Time	t_f			38		
Turn-On Energy	E_{on}			1.5		mJ
Turn-Off Energy	E_{off}			0.8		

Electrical Characteristics @ 25°C (Unless Otherwise Specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Diode Characteristics						
Diode Forward Voltage	V_F	V_{GE}=0V, I_F=30A, T_J=25℃		1.9	2.4	V
		V_{GE}=0V, I_F=30A, T_J=125℃		1.9		
		V_{GE}=0V, I_F=30A, T_J=150℃		1.95		
Reverse Recovery Current	I_{rr}	V_R=300V, I_F=30A, di_F/dt=-300A/μs, T_J=25℃		6.0		A
Reverse Recovery Charge	Q_{rr}			0.1		uC
Reverse Recovery Energy	E_{rec}			0.06		mJ
Reverse Recovery Current	I_{rr}	V_R=300V, I_F=30A, di_F/dt=-300A/μs, T_J=125℃		10		A
Reverse Recovery Charge	Q_{rr}			0.22		uC
Reverse Recovery Energy	E_{rec}			0.13		mJ
Reverse Recovery Current	I_{rr}	V_R=300V, I_F=30A, di_F/dt=-300A/μs, T_J=150℃		12		A
Reverse Recovery Charge	Q_{rr}			0.26		uC
Reverse Recovery Energy	E_{rec}			0.17		mJ

Curve Characteristics

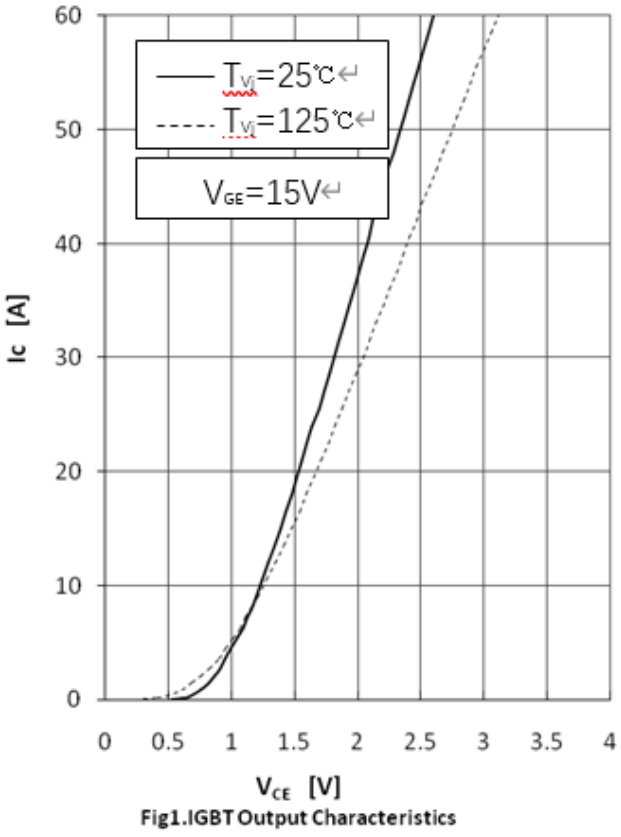


Fig1.IGBT Output Characteristics

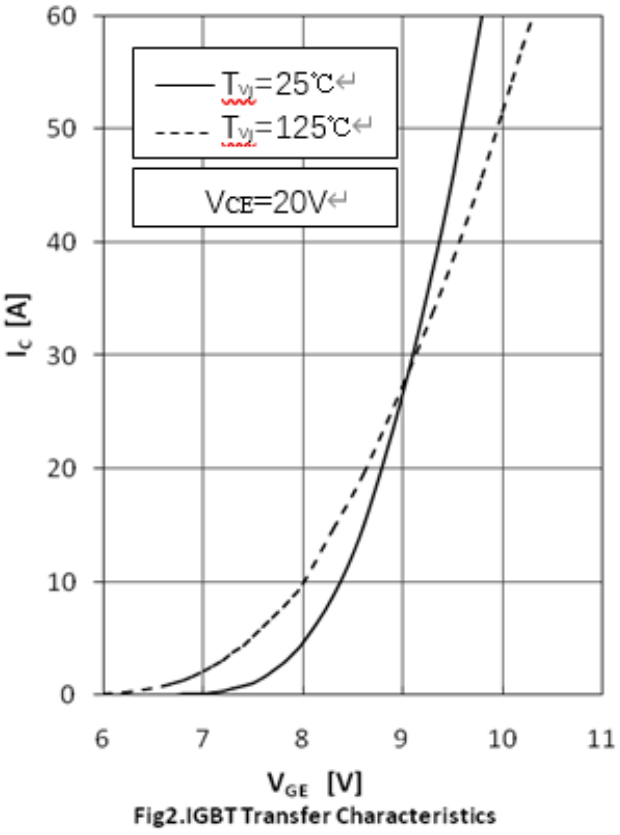


Fig2.IGBT Transfer Characteristics

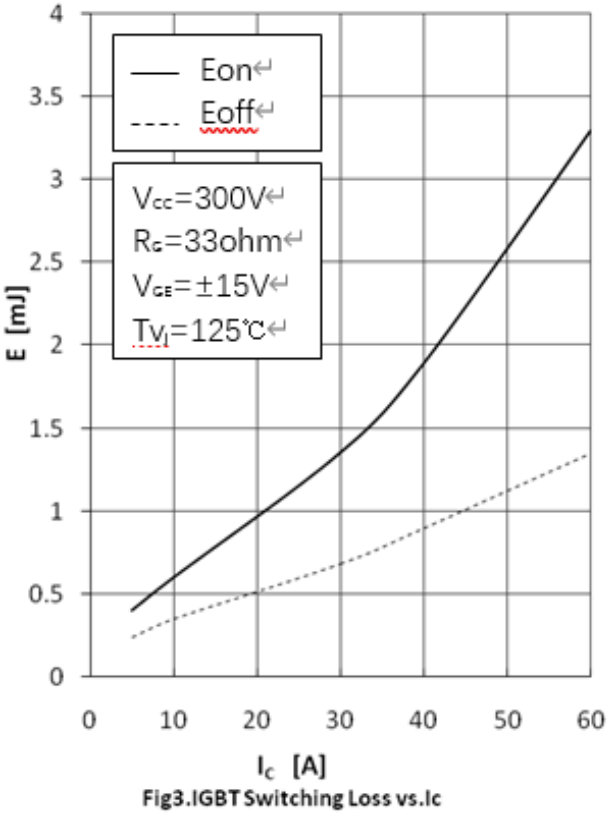


Fig3.IGBT Switching Loss vs.Ic

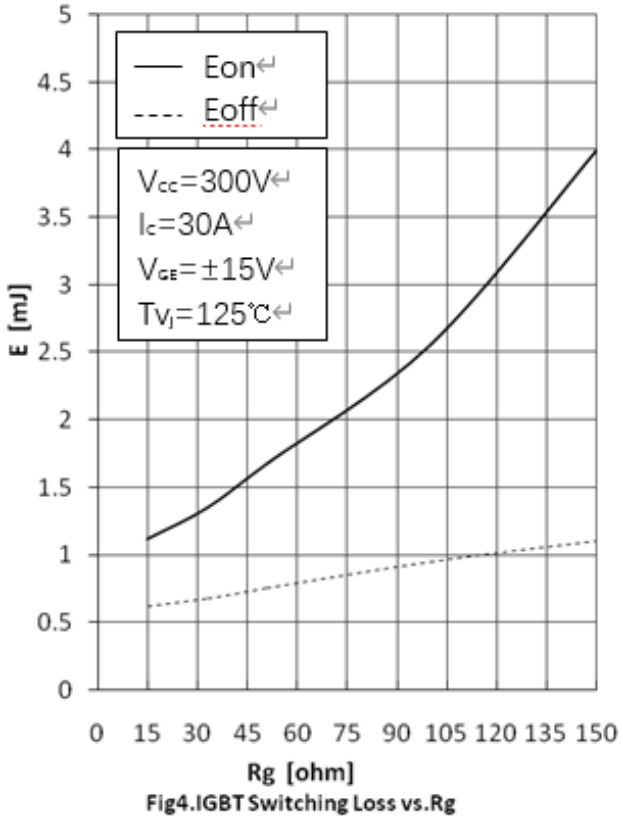


Fig4.IGBT Switching Loss vs.Rg

Curve Characteristics

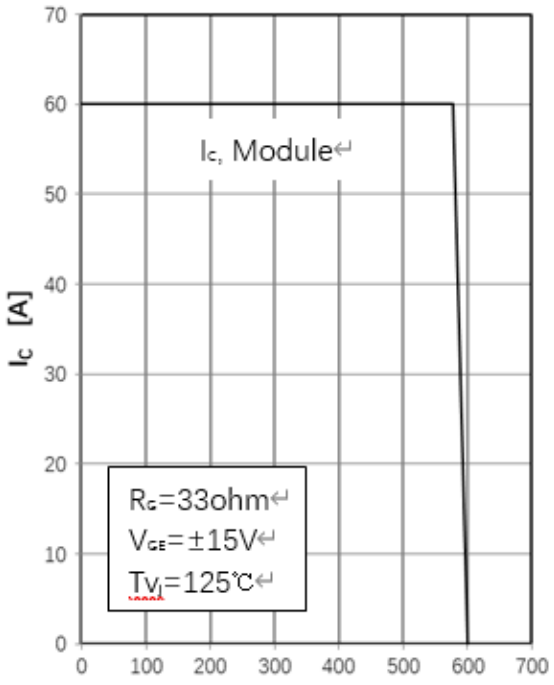


Fig5. RBSOA

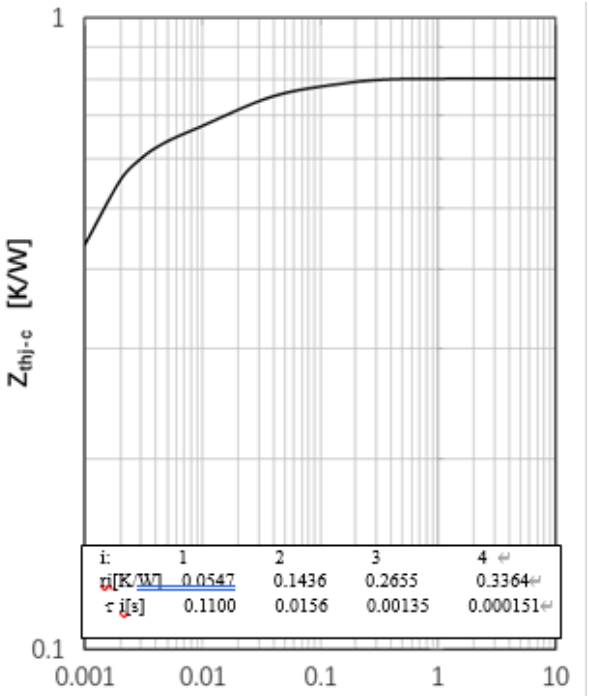


Fig 6. IGBT Transient Thermal Impedance

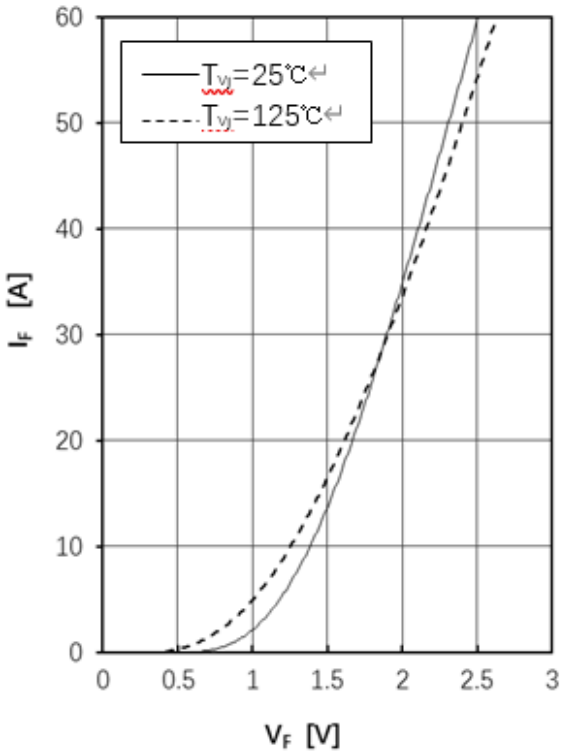


Fig7.Diode Foward Characteristics

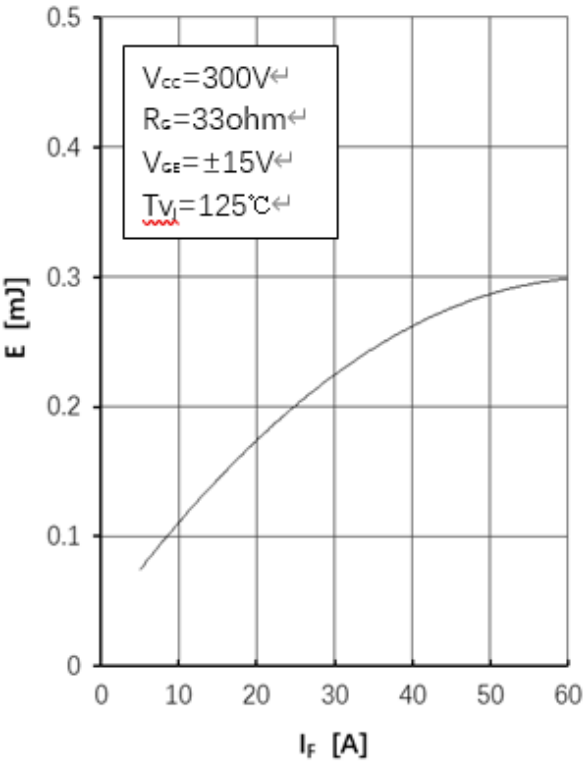


Fig8.Diode Switching Loss(Erec) vs.I_F

Curve Characteristics

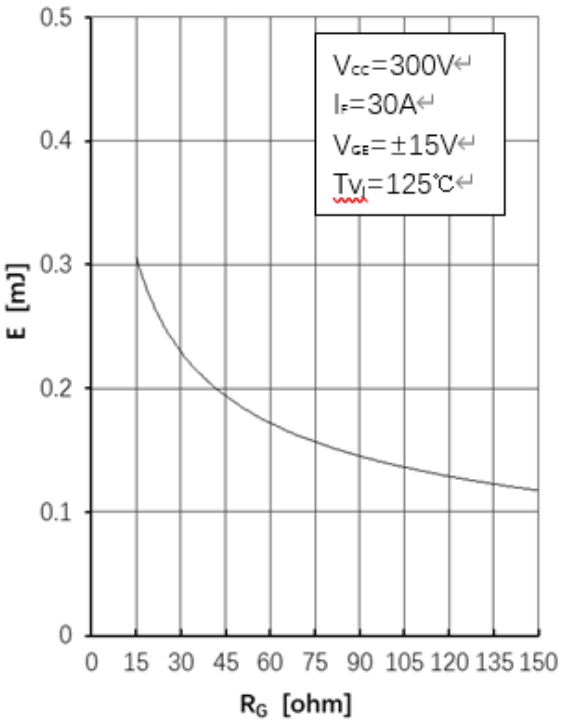


Fig9.Diode Switching Loss(Erec) vs.Rg

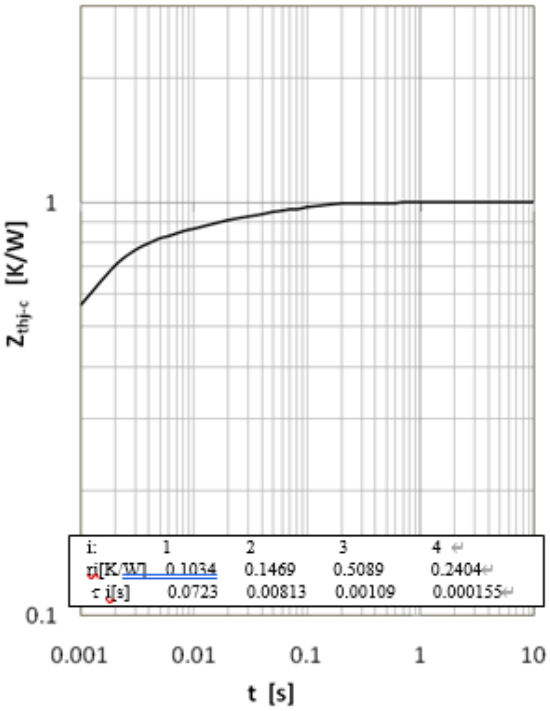


Fig 10. Diode Transient Thermal Impedance

Ordering Information

Device	Packing
Part Number-BP	Tube: 30pcs/Tube, 1800pcs/Ctn

*****IMPORTANT NOTICE*****

Micro Commercial Components Corp. reserves the right to make changes without further notice to any product herein to make corrections, modifications , enhancements , improvements , or other changes . ***Micro Commercial Components Corp*** . does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights ,nor the rights of others . The user of products in such applications shall assume all risks of such use and will agree to hold ***Micro Commercial Components Corp*** . and all the companies whose products are represented on our website, harmless against all damages. ***Micro Commercial Components Corp***. products are sold subject to the general terms and conditions of commercial sale, as published at
https://www.mccsemi.com/Home/TermsAndConditions.

*****LIFE SUPPORT*****

MCC's products are not authorized for use as critical components in life support devices or systems without the express written approval of Micro Commercial Components Corporation.

*****CUSTOMER AWARENESS*****

Counterfeiting of semiconductor parts is a growing problem in the industry. Micro Commercial Components (MCC) is taking strong measures to protect ourselves and our customers from the proliferation of counterfeit parts. MCC strongly encourages customers to purchase MCC parts either directly from MCC or from Authorized MCC Distributors who are listed by country on our web page cited below. Products customers buy either from MCC directly or from Authorized MCC Distributors are genuine parts, have full traceability, meet MCC's quality standards for handling and storage. **MCC will not provide any warranty coverage or other assistance for parts bought from Unauthorized Sources**. MCC is committed to combat this global problem and encourage our customers to do their part in stopping this practice by buying direct or from authorized distributors.

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.