



Product Selector Guide

SiC FETs, SiC JFETs and SiC Schottky Diodes

Q3 - 2021

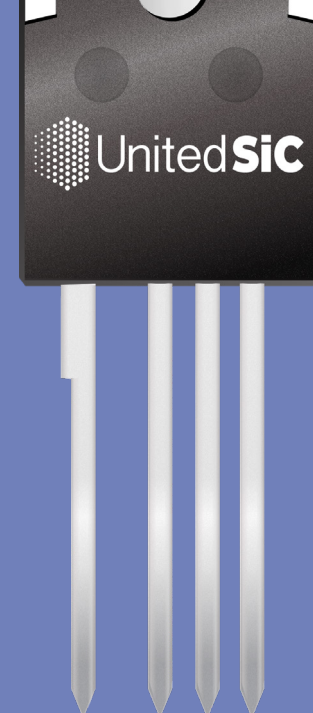
High Performance SiC FETs , JFETs and Schottky Diodes

Key Features

- Multiple V_{DS} options: 650/750/900/1200/1700V
- Lowest $R_{DS(on)}$
 - $6m\Omega$ @ 750V
 - $7m\Omega$ @ 650V
 - $9m\Omega$ @ 1200V
- Gen 4 SiC FETs (UJ4C/SC Series)
 - 750V, $6m\Omega$ to $60m\Omega$ options
- Best-in-class Figures of Merit (FoM)
 - $R_{DS(on)} \times \text{Area}$
 - $C_{oss(er)}/E_{oss} \times R_{DS(on)}$
 - $C_{oss(tr)} \times R_{DS(on)}$
- $5\mu s$ short-circuit withstand time @ $6m\Omega$
- High performance cascode configuration
- Excellent body diode ($V_f < 2V$)
- Drive with any Si and/or SiC gate drive voltage
- Superior thermal performance
- Integrated ESD and gate protection
- Industry standard packages, including Kelvin source
- Majority of devices are AEC-Q101 qualified

End Applications

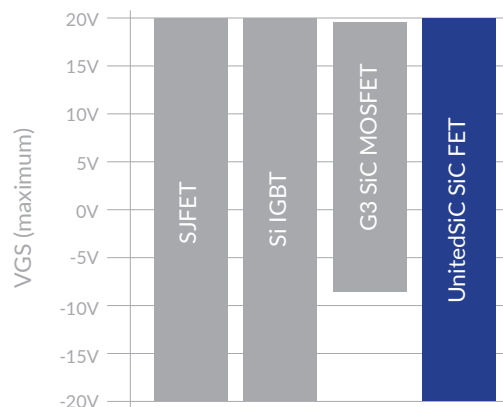
- Electric Vehicles
- Battery Chargers
- Telecom and Server PSU
- Circuit Protection
- Solar Inverters
- Energy Storage
- Motor drives



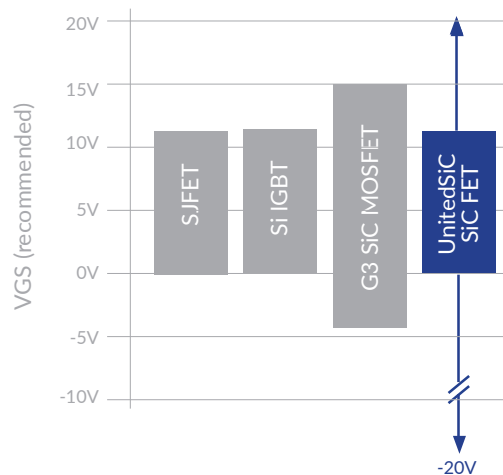
Flexible Design Without Changing Gate Drive Voltage

- Replaces Si IGBTs, Si FETs, SiC MOSFETs or Si Superjunction devices
 - SiC FET design guidelines available to support successful upgrade
- Innovative cascode configuration enables Si and SiC gate voltage compatibility
- Integrated clamping diode protects gates from $|20V|$ with built-in ESD protection

Superior Gate and ESD Protection



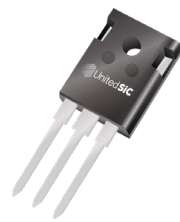
12V/0V Operation Simplifies Upgrading



SiC FETs

650V to 750V

UF3C/UF3SC/UJ3C/UJ4C/UJ4SC Series Selector Guide



Volt.	$R_{DS(on)}$ (m Ω) at 25°C	$R_{DS(on)}$ (m Ω) at 125°C	Generation	TO-247-3L	TO-247-4L	D2PAK-3L	TO-220-3L	D2PAK-7L	DFN 8X8
650V	6.7	8.8	Gen 3 Fast		UF3SC065007K4S				
	27	35	Gen 3 Fast	UF3C065030K3S ⁽¹⁾	UF3C065030K4S	UF3C065030B3 ⁽¹⁾	UF3C065030T3S ⁽¹⁾	UF3SC065030B7S	
			Gen 3	UJ3C065030K3S		UJ3C065030B3	UJ3C065030T3S		
	34	48	Gen 3 Fast						UF3SC065030D8S
	42	59	Gen 3 Fast	UF3C065040K3S	UF3C065040K4S	UF3C065040B3	UF3C065040T3S	UF3SC065040B7S	
	45	67	Gen 3 Fast						UF3SC065040D8S
	80	111	Gen 3 Fast	UF3C065080K3S ⁽¹⁾	UF3C065080K4S	UF3C065080B3 ⁽¹⁾	UF3C065080T3S ⁽¹⁾	UF3C065080B7S	
			Gen 3	UJ3C065080K3S		UJ3C065080B3	UJ3C065080T3S		
750V	5.9	9.8	Gen 4		UJ4SC075006K4S				
	9	14.8	Gen 4		UJ4SC075009K4S				
	11	18.4	Gen 4		UJ4SC075011K4S				
	18	31	Gen 4	UJ4C075018K3S	UJ4C075018K4S				
	23	39	Gen 4	UJ4C075023K3S	UJ4C075023K4S				
	33	57	Gen 4	UJ4C075033K3S	UJ4C075033K4S				
	44	75	Gen 4	UJ4C075044K3S	UJ4C075044K4S				
	58	106	Gen 4	UJ4C075060K3S	UJ4C075060K4S				

Notes:

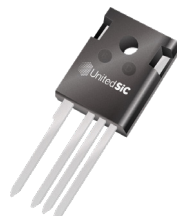
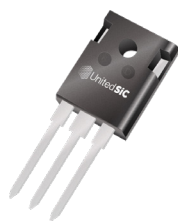
(1) Q(rr) for UF3C FAST device lower than equivalent UJ3C device

All data represents current information as of September, 2021. Please refer to product datasheet for specifications.

SiC FETs

1200V to 1700V

UF3C/UF3SC/UJ3C Series Selector Guide



Volt.	$R_{DS(on)}$ (m Ω) at 25°C	$R_{DS(on)}$ (m Ω) at 125°C	Generation	TO-247-3L	TO-247-4L	D2PAK-3L	TO-220-3L	D2PAK-7L	DFN 8X8
1200V	8.6	13.5	Gen 3 Fast		UF3SC120009K4S				
	16	25	Gen 3 Fast	UF3SC120016K3S	UF3SC120016K4S				
	35	56	Gen 3 Fast	UF3C120040K3S	UF3C120040K4S			UF3SC120040B7S	
			Gen 3	UJ3C120040K3S					
	70	111	Gen 3	UJ3C120070K3S					
	80	132	Gen 3 Fast	UF3C120080K3S	UF3C120080K4S			UF3C120080B7S	
			Gen 3	UJ3C120080K3S ⁽¹⁾					
	150	254	Gen 3 Fast		UF3C120150K4S			UF3C120150B7S	
			Gen 3	UJ3C120150K3S					
	410	775	Gen 3 Fast	UF3C120400K3S					
1700V	410	775	Gen 3 Fast	UF3C170400K3S					

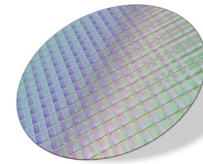
Notes:

(1) The UJ3C120080K3S is not recommended for new designs. UJ3C120070KS is recommended as a replacement. Please contact UnitedSiC sales for recommended device support at sales@unitedsic.com

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SiC JFETs

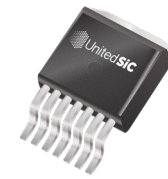
UJ3N/UF3N Series Selector Guide



Wafer (Contact Sales)



TO-247-3L



D2PAK-7L

Voltage	$R_{DS(on)}$ (mΩ)	I_D max (A) at 25°C	Generation			
1700V	1100	3.4	Gen 3	UJ3N1701K2		
	400	6.8	Gen 3 Fast			UF3N170400B7S
	400	8 (1)	Gen 3 Fast	UF3N170400		
1200V	140	20 (1)	Gen 3 Fast	UF3N120140		
	70	33.5	Gen 3	UJ3N120070	UJ3N120070K3S	
	66	34	Gen 3		UJ3N120065K3S	
	35	63	Gen 3	UJ3N120035	UJ3N120035K3S	
900V	735	4 (1)	Gen 3 Fast	UF3N090800		
	330	8 (1)	Gen 3 Fast	UF3N090350		
650V	580	4 (1)	Gen 3 Fast	UF3N065600		
	265	8 (1)	Gen 3 Fast	UF3N065300		
	80	32	Gen 3	UJ3N065080	UJ3N065080K3S	
	25	85	Gen 3	UJ3N065025	UJ3N065025K3S	

Notes:

(1) Limited by bondwire.

Advanced information for wafer parts, please refer to product datasheet for specifications.

SiC Schottky Diodes

UJ3D Series Selector Guide



Voltage	Current Rating	Generation	TO-220-2L	TO-247-3L	TO-247-2L
1700V	25A	Gen 3			UJ3D1725K2
1200V	2A	Gen 3	UJ3D1202TS		
	5A	Gen 3	UJ3D1205TS		
	2 x 5A	Gen 3		UJ3D1210KSD	
	10A	Gen 3	UJ3D1210TS	UJ3D1210KS	UJ3D1210K2
	2 x 10A	Gen 3		UJ3D1220KSD	
	20A	Gen 3			UJ3D1220K2
	50A	Gen 3		UJ3D1250K	UJ3D1250K2
650V	4A	Gen 3	UJ3D06504TS		
	6A	Gen 3	UJ3D06506TS		
	8A	Gen 3	UJ3D06508TS		
	10A	Gen 3	UJ3D06510TS		
	12A	Gen 3	UJ3D06512TS		
	16A	Gen 3	UJ3D06516TS		
	2 x 10A	Gen 3		UJ3D06520KSD	
	20A	Gen 3	UJ3D06520TS		
	30A	Gen 3	UJ3D06530TS		
	2 x 30A	Gen 3		UJ3D06560KSD	

Note(s):
 For all die inquiries, contact sales@unitedsic.com
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