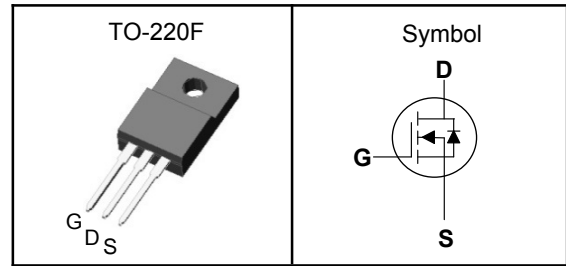


800V Super Junction Power MOSFET
Features

- Low drain-source on-resistance: $R_{DS(ON)}=0.74\Omega$ (typ)
- Easy to control gate switching
- Enhancement mode: $V_{th} = 2$ to $4V$
- 100% avalanche tested
- RoHS compliant

Applications

- Switch Mode Power Supply (SMPS)
- Uninterruptible Power Supply (UPS)
- Power Factor Correction (PFC)
- Charger, Lighting.

Pin Description


V_{DSS}	800	V
$R_{DS(ON)-Typ}$	740	m Ω
I_D	6.6	A

Absolute Maximum Ratings ($T_J=25^\circ C$, Unless Otherwise Noted)

Symbol	Parameter	N-Channel	Unit	
V_{DSS}	Drain-Source Voltage	800	V	
V_{GSS}	Gate-Source Voltage	± 30	V	
T_J	Maximum Junction Temperature	-55 to 150	$^\circ C$	
T_{STG}	Storage Temperature Range	-55 to 150	$^\circ C$	
E_{AS}	Single Pulse Avalanche Energy ³	200	mJ	
$I_{DM}^{①}$	Pulse Drain Current Tested	19.8	A	
I_D	Continuous Drain Current	$T_C=25^\circ C$	6.6	A
P_D	Maximum Power Dissipation	$T_C=25^\circ C$	27	W

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$	Thermal Resistance Junction-Ambient ¹ (Max)	80	$^\circ C/W$
$R_{\theta JC}$	Thermal Resistance Junction-Case ¹	4.57	$^\circ C/W$

Note ① : Max. current is limited by bonding wire.

Note ② : UIS tested and pulse width are limited by maximum junction temperature $150^\circ C$.

Note ③ : Surface Mounted on $1in^2$ FR-4 board with 1oz.

**800V Super Junction Power MOSFET****Electrical Characteristics** ($T_J=25^\circ\text{C}$, Unless Otherwise Noted)

Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V, I_D=1mA$	800	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	$V_{DS}=800V, V_{GS}=0V$	---	---	1	μA
$V_{GS(th)}$	Gate Threshold Voltage	$V_{DS}=V_{GS}, I_D=220\mu A$	2.0	---	4.0	V
I_{GSS}	Gate Leakage Current	$V_{GS}=\pm 30V, V_{DS}=0V$	---	---	± 100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	$V_{GS}=10V, I_D=1.6A$	---	740	850	m Ω
Dynamic Characteristics ^⑤						
C_{iss}	Input Capacitance	$V_{GS}=0V,$ $V_{DS}=500V,$ Freq.=1MHz	---	635	---	pF
C_{oss}	Output Capacitance		---	14.6	---	
C_{rss}	Reverse Transfer Capacitance		---	2.5	---	
$T_{d(on)}$	Turn-on Delay Time	$V_{DD}=400V, R_G=25\Omega,$ $I_D=2.8A$	---	23	---	nS
T_r	Turn-on Rise Time		---	18	---	
$T_{d(off)}$	Turn-off Delay Time		---	74	---	
T_f	Turn-off Fall Time		---	17	---	
Q_g	Total Gate Charge	$V_{DD}=640V, V_{GS}=10V,$ $I_D=2.8A$	---	13.7	---	nC
Q_{gs}	Gate-Source Charge		---	2.9	---	
Q_{gd}	Gate-Drain Charge		---	4.2	---	
Source-Drain Characteristics ($T_J=25^\circ\text{C}$)						
V_{SD}	Diode Forward Voltage _z	$V_{GS}=0V,$ $I_S=2.8A, T_J=25^\circ\text{C}$	---	---	1.3	V
t_{rr}	Reverse Recovery Time	$V_G=400V, I_S=2.8A,$ $di/dt=100A/\mu s, T_J=25^\circ\text{C}$	---	170	---	nS
Q_{rr}	Reverse Recovery Charge		---	1.1	---	nC

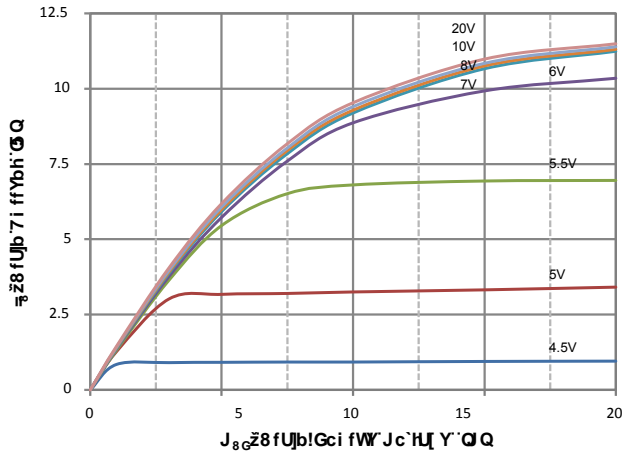
Note ④ : Pulse test (pulse width \leq 300us, duty cycle \leq 2%).

Note ⑤ : Guaranteed by design, not subject to production testing.

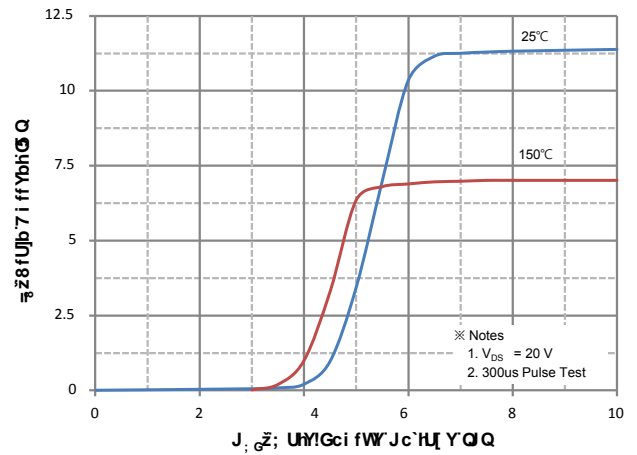


800V Super Junction Power MOSFET

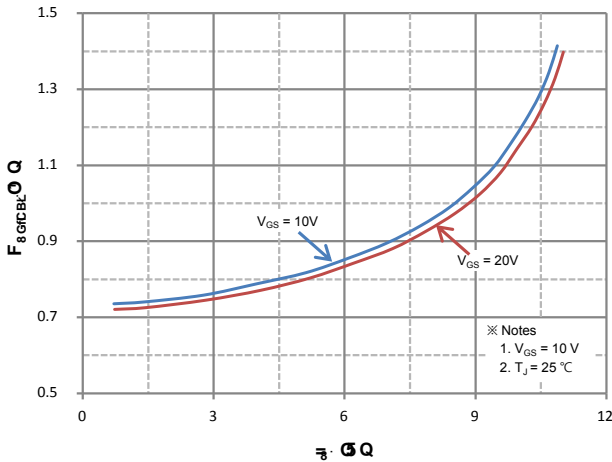
Handing 7 \ UfUWYf]ghVg



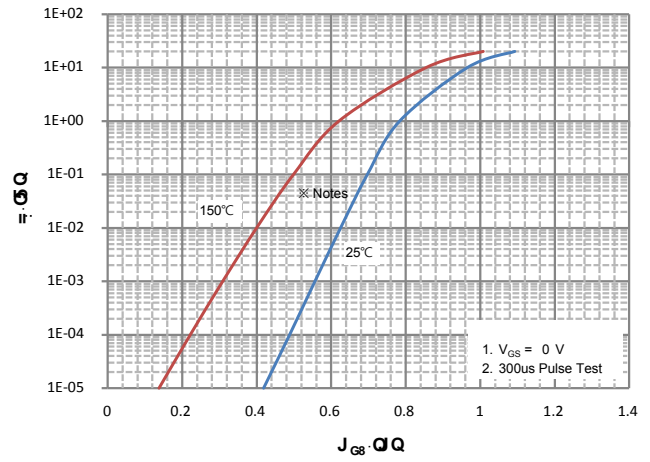
: [(i fY%'Cb'FY[]cb'7 \ UfUWYf]ghVg



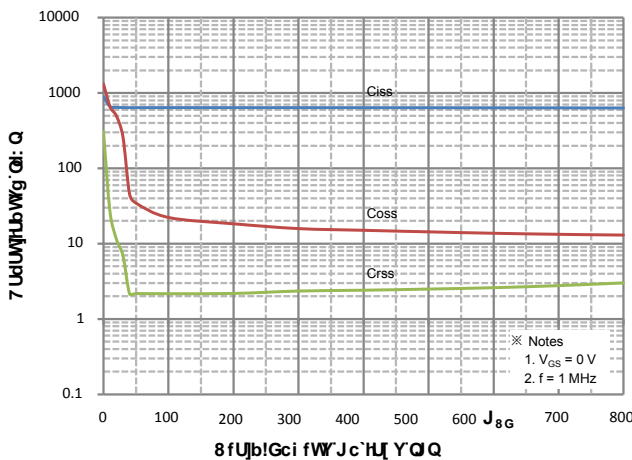
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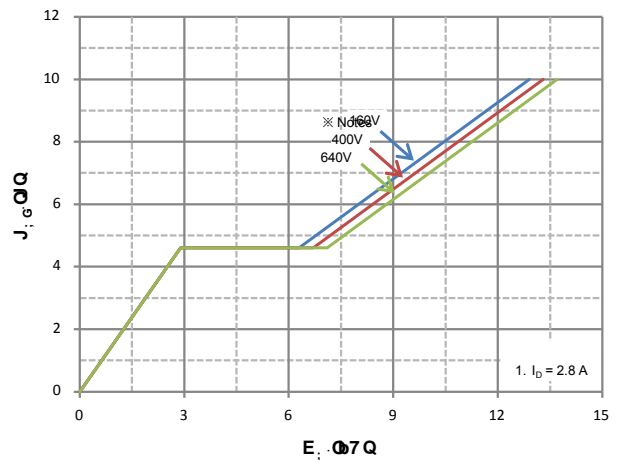
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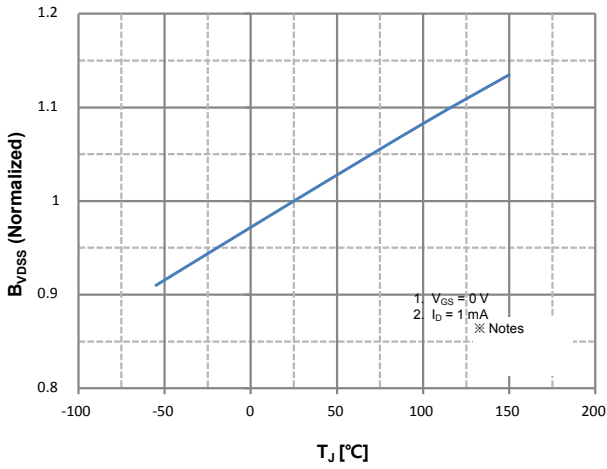
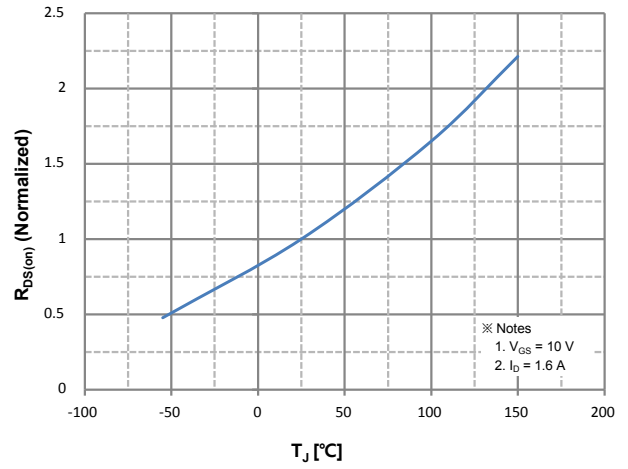
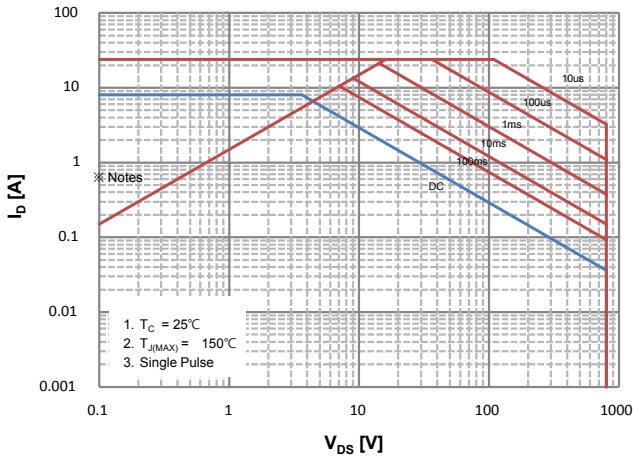
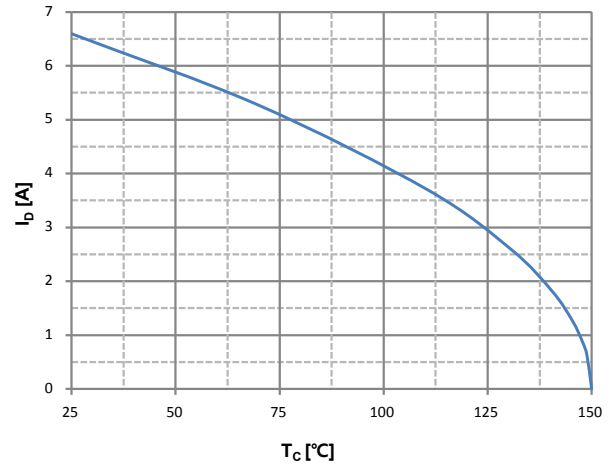
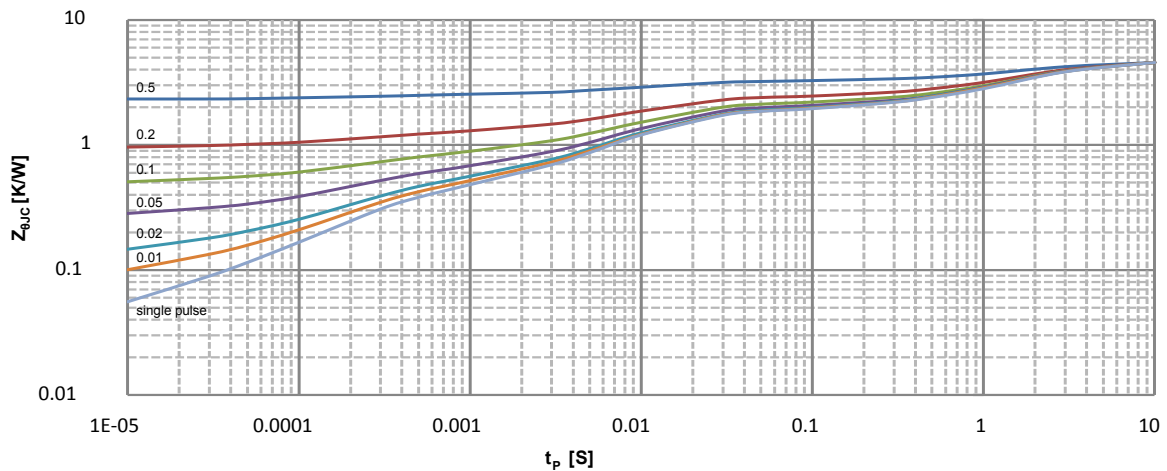
: [(i fY' ("6cXm8]cXY: cfk UFX'Jc'HU'Y JUF]Ujcb'k]h'Gci fW'7i ffYbh UbX'HYa dYfUi fY



: [(i fY' "7 UdUWYf]ghVg'7 \ UfUWYf]ghVg
 Q_g , Total Gate Charge (nC)



: [(i fY' *"; UH'7 \ Uf[Y'7 \ UfUWYf]ghVg
 V_{SD} , Source-to-Drain Voltage (V)

800V Super Junction Power MOSFET

Figure 7. Breakdown Voltage Variation vs. Temperature

Figure 8. On-Resistance Variation vs. Temperature

Figure 9. Maximum Safe Operating Area

Figure 10. Maximum Drain Current vs. Case Temperature

Figure 11. Transient Thermal Response Curve

800V Super Junction Power MOSFET
TO-220F Package Outline Data
