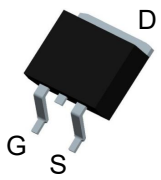
P-Channel Enhancement Mode MOSFET

Features

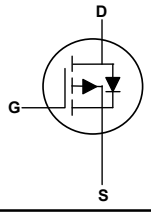
- Advanced trench cell design
- Low Thermal Resistance
- ROHS Compliant & Halogen-Free
- 100% UIS and Rg Tested

Pin Description

TO-263



Symbol



Applications

- Motor drivers
- DC - DC Converter

V_{DSS}	-100	V
$R_{DS(ON)-Typ}$	12	mΩ
I_D	-65	A

Absolute Maximum Ratings (T_J=25℃, Unless Otherwise Noted)

Symbol	Parameter		Rating	Unit
V_{DSS}	Drain-Source Voltage		-100	V
V_{GSS}	Gate-Source Voltage		±20	V
T_J	Maximum Junction Temperature		-55 to 150	℃
T_{STG}	Storage Temperature Range		-55 to 150	℃
I_{DM} ①	Pulse Drain Current Tested		-260	A
I_D	Continuous Drain Current	T_C=25°C	-65	A
P_D	Maximum Power Dissipation	T_C=25°C	125	W
I_{AS} ②	Avalanche Current, Single pulse	L=0.1mH	60	A
E_{AS} ②	Avalanche Energy, Single pulse	L=0.5mH	180	mJ

Thermal Characteristics

Symbol	Parameter	Rating	Unit
$R_{\theta JA}$ ③	Thermal Resistance-Junction to Ambient	16	℃/W
$R_{\theta JC}$	Thermal Resistance-Junction to Case	1	℃/W

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

Note ②: UIS tested and pulse width are limited by maximum junction temperature 150℃.

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

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Electrical Characteristics (T_J=25℃, Unless Otherwise Noted)

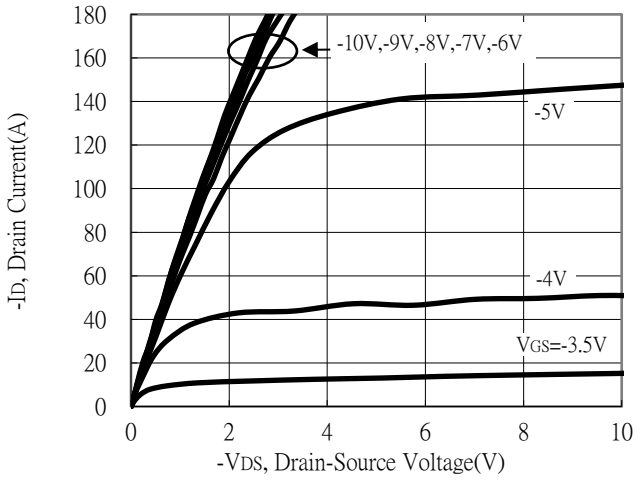
Symbol	Parameter	Test Conditions	Min	Typ	Max	Unit
Static Electrical Characteristics						
BV_{DSS}	Drain-Source Breakdown Voltage	V_{GS}=0V, I_D=-250uA	-100	---	---	V
I_{DSS}	Zero Gate Voltage Drain Current	V_{DS}=-80V, V_{GS}=0V	---	---	-1	uA
$V_{GS(th)}$	Gate Threshold Voltage	V_{DS}=V_{GS} , I_D=-250uA	-1.0	---	-2.5	V
I_{GSS}	Gate Leakage Current	V_{GS}=±20V, V_{DS}=0V	---	---	±100	nA
$R_{DS(ON)}$	Drain-Source On-state Resistance	V_{GS}=-10V, I_D=-15A	---	12	15	mΩ
		V_{GS}=-4.5V, I_D=-10A	---	14	18	mΩ
Dynamic Characteristics⑤						
C_{iss}	Input Capacitance	V_{GS}=0V, V_{DS}=-30V, Freq.=1MHz	---	10103	---	pF
C_{oss}	Output Capacitance		---	593	---	
C_{rss}	Reverse Transfer Capacitance		---	161	---	
$T_{d(on)}$	Turn-on Delay Time	V_{GS}=-10V,V_{DD}=-50V, I_D=-15A,R_G=1Ω	---	35	---	nS
T_r	Turn-on Rise Time		---	36	---	
$T_{d(off)}$	Turn-off Delay Time		---	169	---	
T_f	Turn-off Fall Time		---	51	---	
Q_g	Total Gate Charge	V_{GS}=-10V,V_{DD}=-50V, I_D=-15A	---	176	---	nC
Q_{gs}	Gate-Source Charge		---	20	---	
Q_{gd}	Gate-Drain Charge		---	60	---	
Source-Drain Characteristics						
V_{SD}④	Diode Forward Voltage	I_S=-15A, V_{GS}=0V	---	---	-1.2	V

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

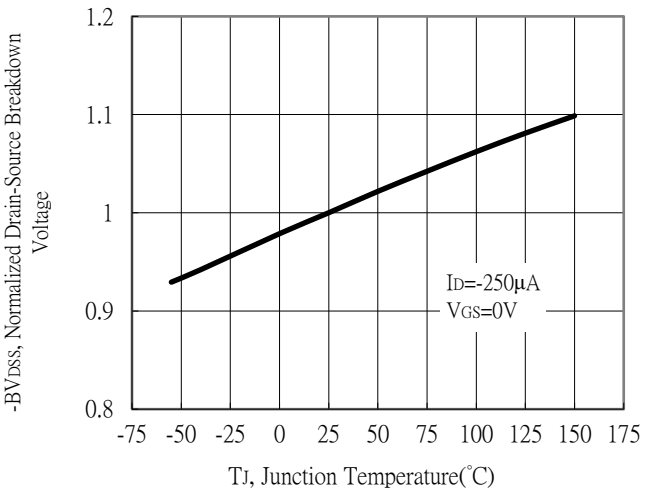
Note ⑤ : Guaranteed by design, not subject to production testing.

Typical Characteristics

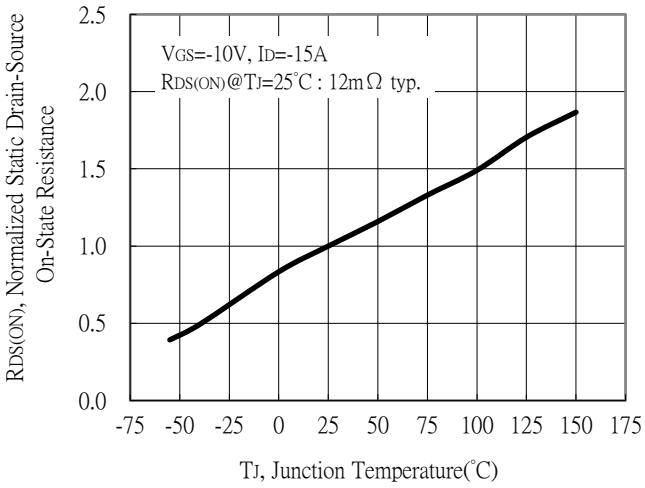
Typical Output Characteristics



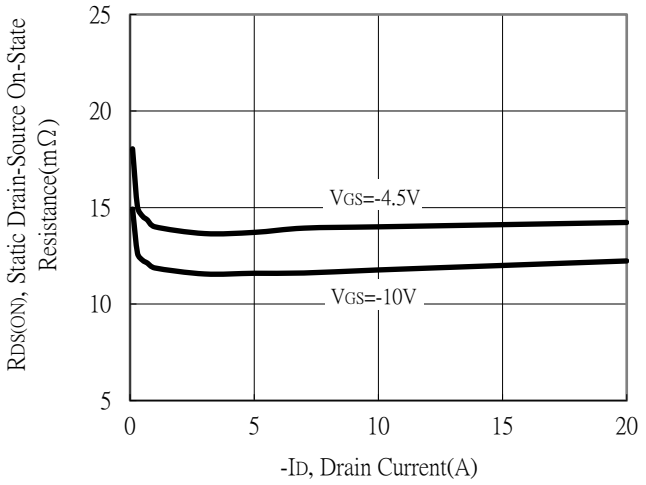
Breakdown Voltage vs Ambient Temperature



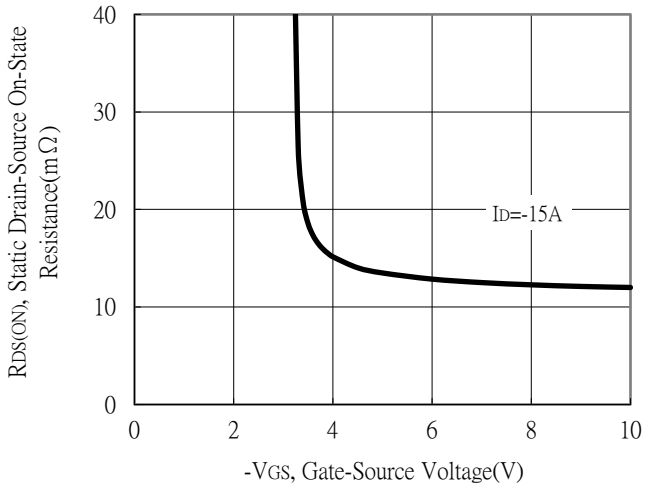
Drain-Source On-State Resistance vs Junction Temperature



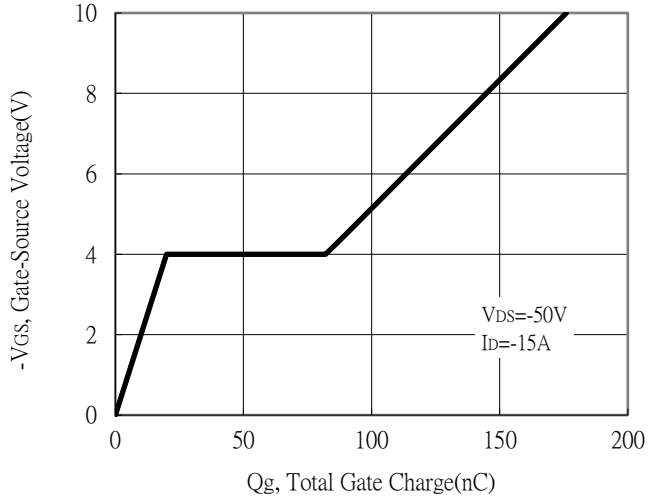
Static Drain-Source On-State resistance vs Drain Current



Static Drain-Source On-State Resistance vs Gate-Source Voltage



Gate Charge Characteristics



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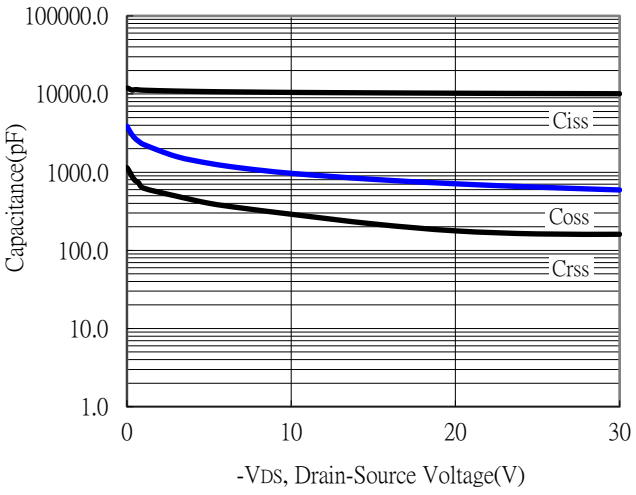
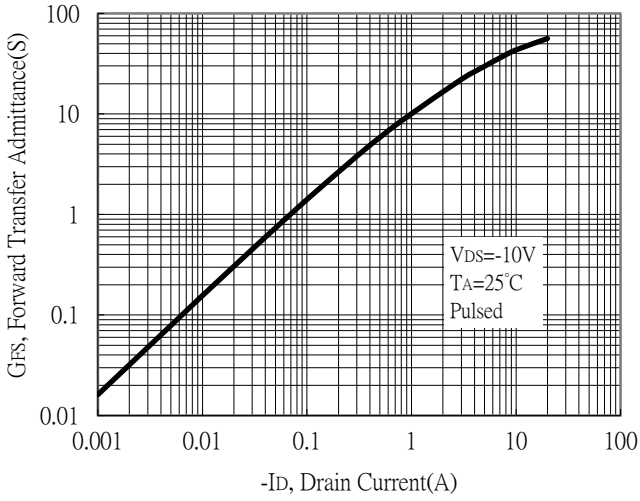
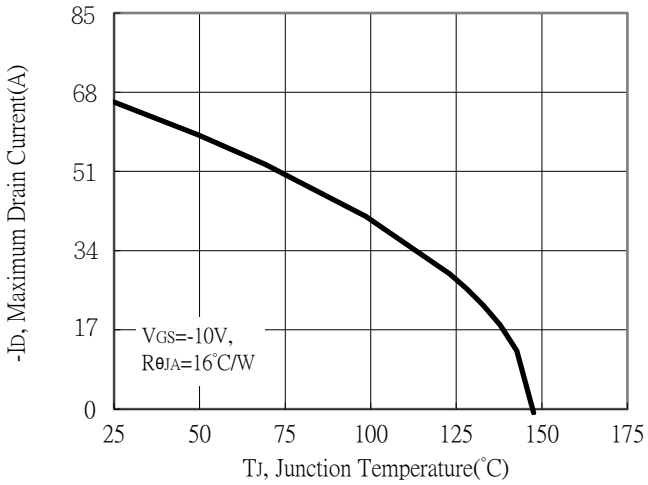
Capacitance vs Drain-to-Source Voltage



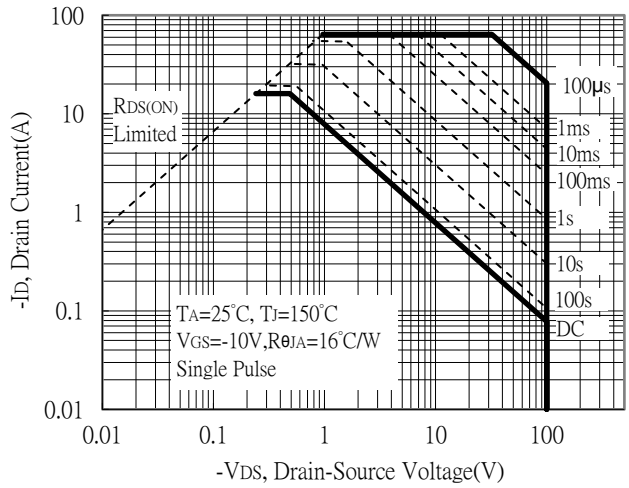
Forward Transfer Admittance vs Drain Current



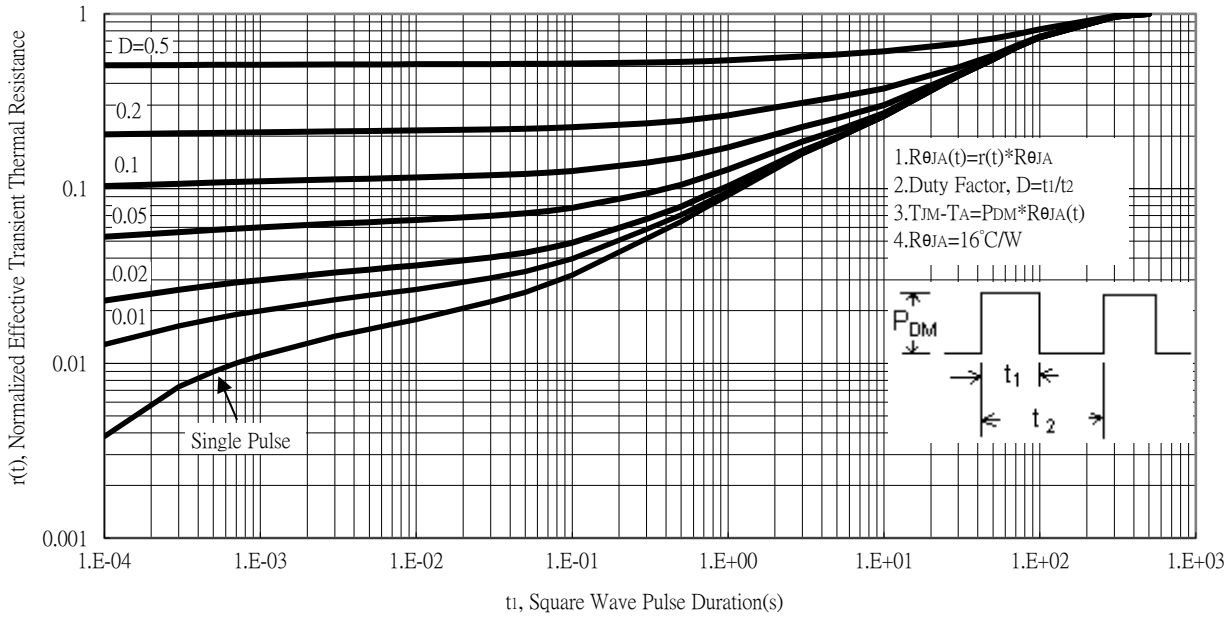
Maximum Drain Current vs Junction Temperature



Maximum Safe Operating Area



Transient Thermal Response Curves



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TO-263 Package Outline Data