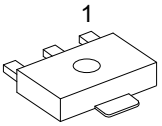
UT06P03

Power MOSFET

P-CHANNEL ENHANCEMENT MODE

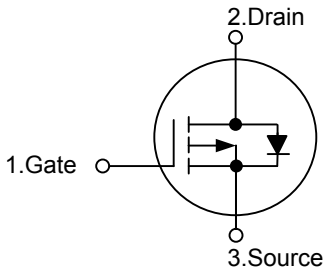


SOT-89

■ DESCRIPTION

The **UT06P03** is P-Channel Power MOSFET, designed with high density cell with fast switching speed, ultra low on-resistance, excellent thermal and electrical capabilities.

■ SYMBOL



■ ORDERING INFORMATION

Ordering Number	Package	Pin Assignment			Packing
		1	2	3	
UT06P03G-AB3-R	SOT-89	G	D	S	Tape Reel

UT06P03G-AB3-R

(1)Packing Type	(1) R: Tape Reel
(2)Package Type	(2) AB3: SOT-89
(3)Halogen Free	(3) G: Halogen Free

■ ABSOLUTE MAXIMUM RATINGS (T_C = 25℃, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Drain-Source Voltage	V_{DSS}	-30	V
Gate-Source Voltage	V_{GSS}	±20	
Continuous Drain Current	I_D	-4	A
Pulsed Drain Current (Note 1, 2)	I_{DM}	-20	
Total Power Dissipation	P_D	0.78	W
Junction Temperature	T_J	+150	℃
Storage Temperature	T_{STG}	-55 ~ +150	℃

Note: Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.

■ THERMAL DATA

PARAMETER	SYMBOL	MAX	UNIT
Junction-to-Ambient	θ_{JA}	160	℃/W
Junction-to-Case	θ_{JC}	18	℃/W

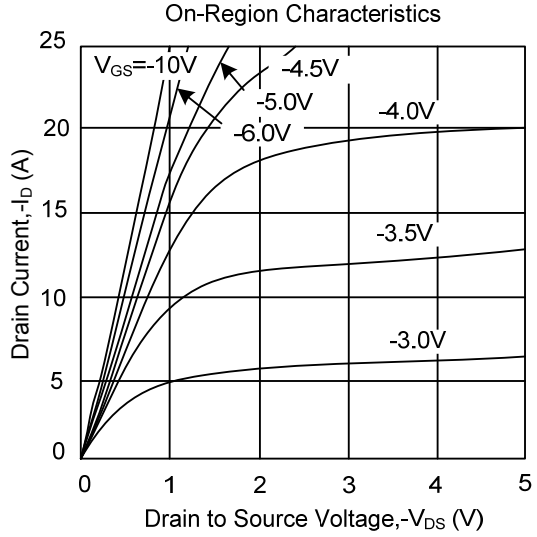
■ ELECTRICAL CHARACTERISTICS (T_C =25°C, unless otherwise noted)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
OFF CHARACTERISTICS						
Drain-Source Breakdown Voltage	BV_{DSS}	V_{GS} =0 V, I_D =-250μA	-30			V
Drain-Source Leakage Current	I_{DSS}	V_{DS} =-24V, V_{GS} =0 V			1	μA
Gate-Source Leakage Current	I_{GSS}	V_{DS} =0 V, V_{GS} = ±20V			±100	nA
ON CHARACTERISTICS						
Gate Threshold Voltage	$V_{GS(TH)}$	V_{DS} =V_{GS}, I_D =-250 μA	-0.9	-1.5	-3	V
Drain-Source On-State Resistance (Note 2)	$R_{DS(ON)}$	V_{GS} =-4.5V, I_D =-3A		60	75	mΩ
		V_{GS} =-10V, I_D =-4A		37	45	
DYNAMIC PARAMETERS						
Input Capacitance	C_{ISS}	V_{DS} =-15V, V_{GS} =0V, f=1MHz		530		pF
Output Capacitance	C_{OSS}			135		
Reverse Transfer Capacitance	C_{RSS}			70		
SWITCHING PARAMETERS						
Turn-ON Delay Time (Note 2)	$t_{D(ON)}$	V_{GS}=-10V,V_{DS}=-15V,R_G=6Ω, I_D=-1A		5.7		ns
Turn-ON Rise Time	t_R			10		
Turn-OFF Delay Time	$t_{D(OFF)}$			18		
Turn-OFF Fall Time	t_F			5		
Total Gate Charge (Note 2)	Q_G	V_{DS}=0.5BV_{DSS}, V_{GS} =-10V, I_D =-4A		10	14	nC
Gate-Source Charge	Q_{GS}			2.2		
Gate-Drain Charge	Q_{GD}			2		
SOURCE-DRAIN DIODE RATINGS AND CHARACTERISTICS						
Drain-Source Diode Forward Voltage	V_{SD}	I_F = -1A, V_{GS} = 0V			-1.2	V
Maximum Body-Diode Continuous Current	I_S				-2.1	A
Maximum Pulsed Drain-Source Diode Forward Current (Note 1)	I_{SM}				-4	
Reverse Recovery Time	t_{RR}	I_F=-4 A, dI_F/dt=100A/μs		15.5		ns
Recovery Charge	Q_{RR}			7.9		nC

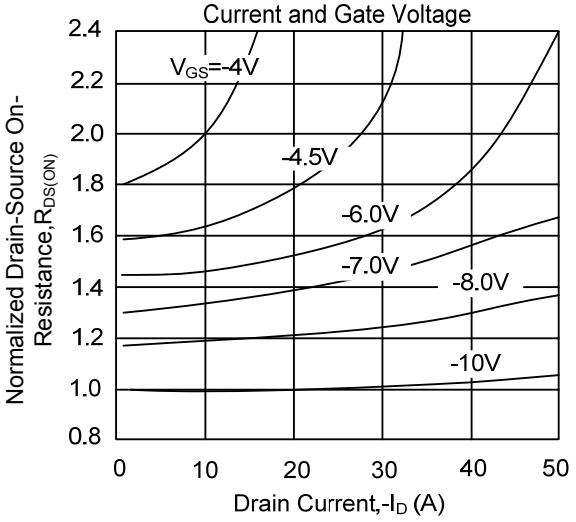
Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300us, duty cycle ≤2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board.

■ TYPICAL CHARACTERISTICS

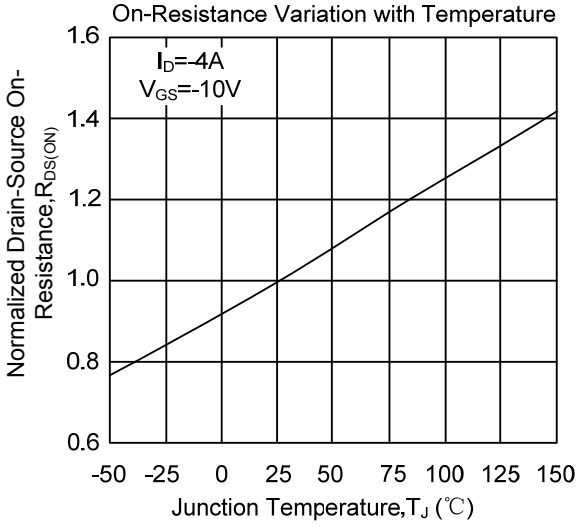
On-Region Characteristics



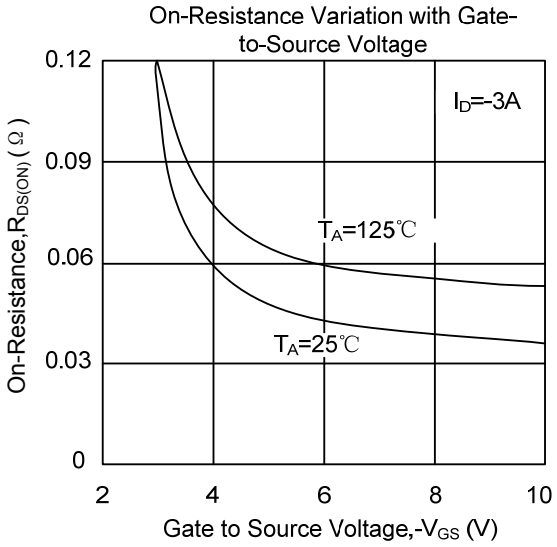
On-Resistance Variation with Drain Current and Gate Voltage



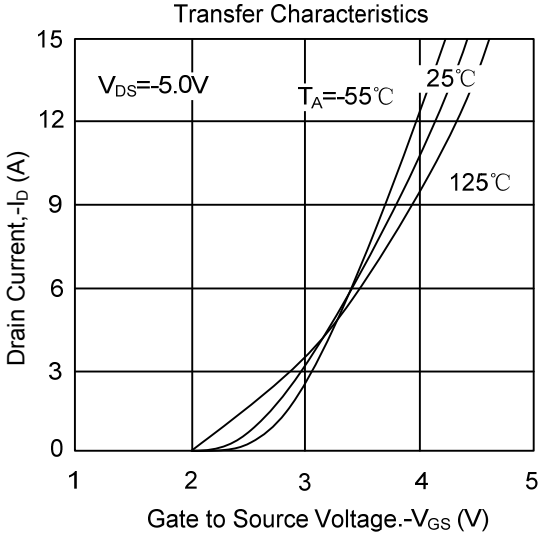
On-Resistance Variation with Temperature



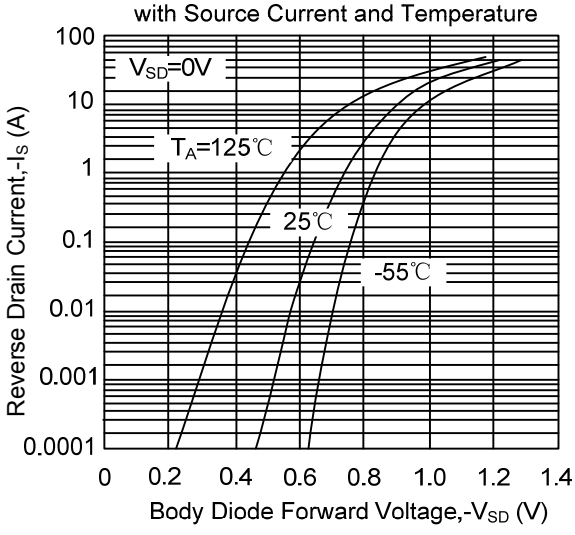
On-Resistance Variation with Gate-to-Source Voltage



Transfer Characteristics

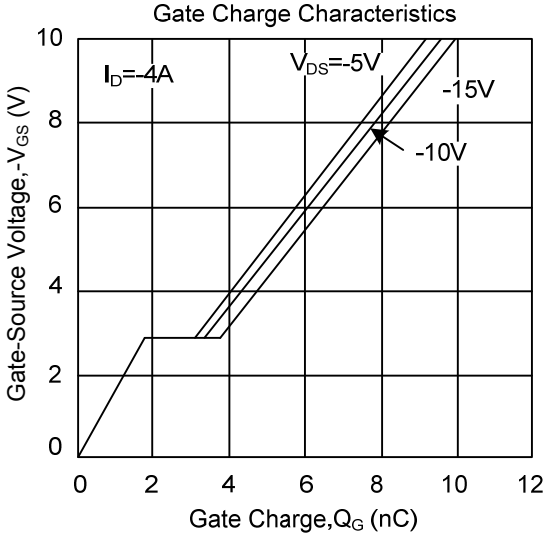


Body Diode Forward Voltage Variation with Source Current and Temperature

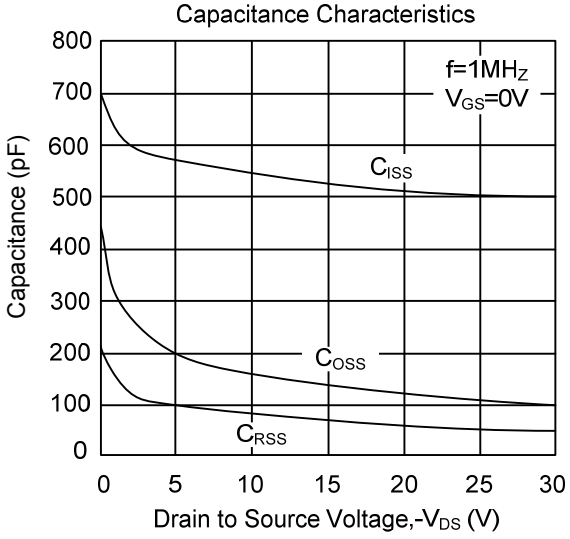


■ TYPICAL CHARACTERISTICS(Cont.)

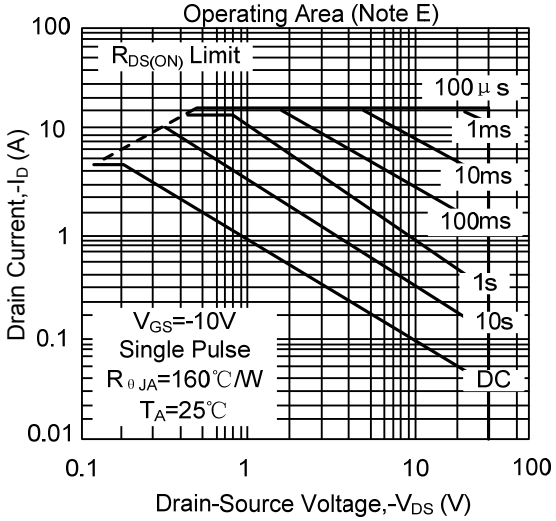
Gate Charge Characteristics



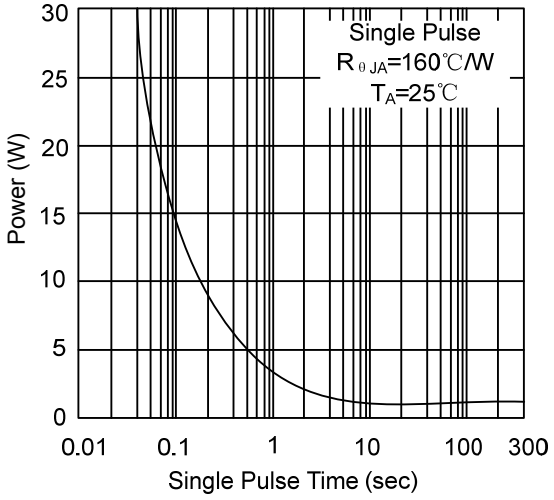
Capacitance Characteristics



Maximum Forward Biased Safe Operating Area (Note E)



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve