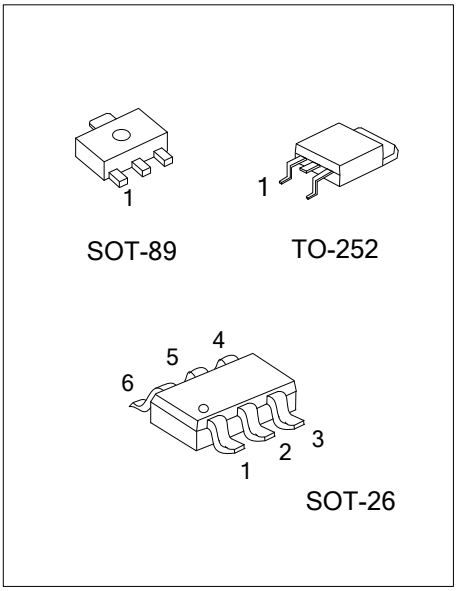
UT06P03

Power MOSFET

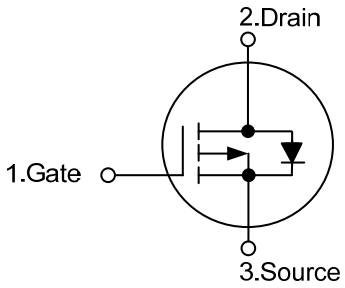
P-CHANNEL ENHANCEMENT MODE



■ 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



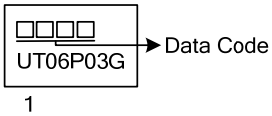
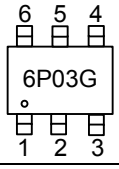
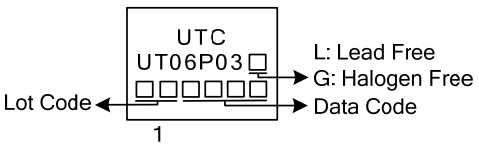
■ ORDERING INFORMATION

Ordering Number		Package	Pin Assignment						Packing
Lead Free	Halogen Free		1	2	3	4	5	6	
-	UT06P03G-AB3-R	SOT-89	G	D	S	-	-	-	Tape Reel
-	UT06P03G-AG6-R	SOT-26	D	D	G	S	D	D	Tape Reel
UT06P03L-TN3-R	UT06P03G-TN3-R	TO-252	G	D	S	-	-	-	Tape Reel

Note: Pin Assignment: G: Gate D: Drain S: Source

UT06P03G-AB3-R (1)Packing Type (2)Package Type (3)Green Package	(1) R: Tape Reel, T: Tube (2) AB3: SOT-89, AG6: SOT-26, TN3: TO-252 (3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

SOT-89	SOT-26	TO-252
		

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

PARAMETER		SYMBOL	RATINGS	UNIT
Drain-Source Voltage		V_{DSS}	-30	V
Gate-Source Voltage		V_{GSS}	±20	V
Continuous Drain Current		I_D	-4	A
Pulsed Drain Current (Note 1, 2)		I_{DM}	-20	A
Total Power Dissipation (T_A = 25°C)	SOT-89	P_D	0.78	W
	SOT-26		0.41	W
	TO-252		1	W
Junction Temperature		T_J	+150	°C
Storage Temperature		T_{STG}	-55 ~ +150	°C

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	SOT-89	θ_{JA}	160	°C/W
	SOT-26		300	°C/W
	TO-252		110	°C/W
Junction to Case	SOT-89	θ_{JC}	18	°C/W
	SOT-26		110	°C/W
	TO-252		7.93	°C/W

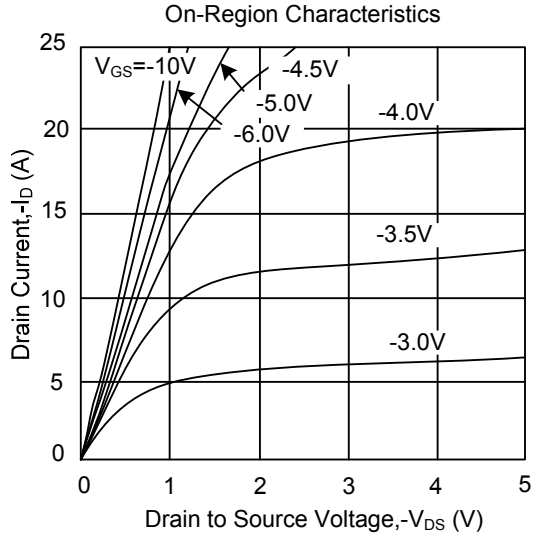
■ ELECTRICAL CHARACTERISTICS (T_C =25°C, unless otherwise noted)

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

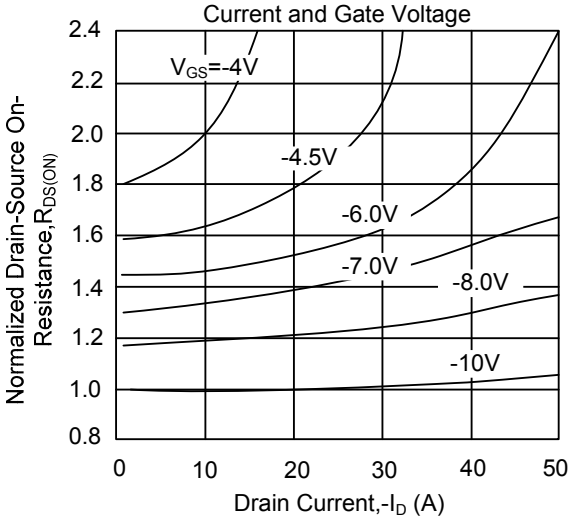
Notes: 1. Pulse width limited by $T_{J(MAX)}$
2. Pulse width ≤300us, duty cycle ≤2%.
3. Surface mounted on 1 in^2 copper pad of FR4 board.

■ TYPICAL CHARACTERISTICS

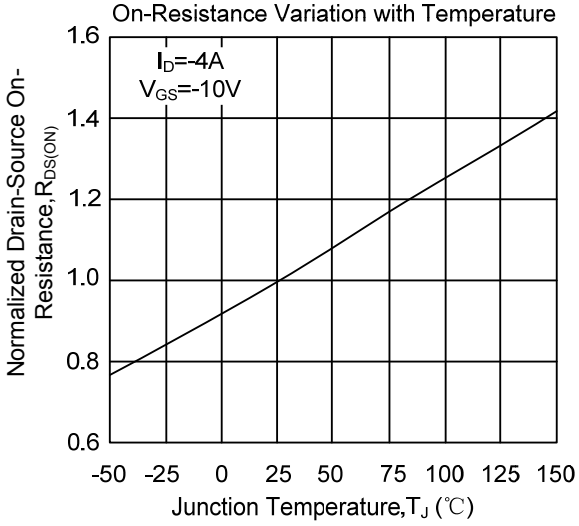
On-Region Characteristics



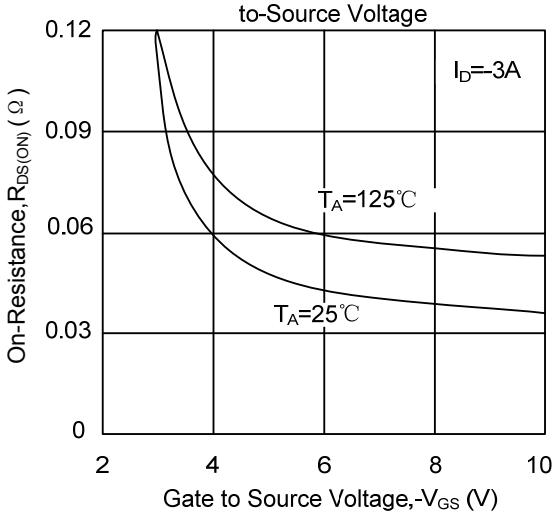
On-Resistance Variation with Drain Current and Gate Voltage



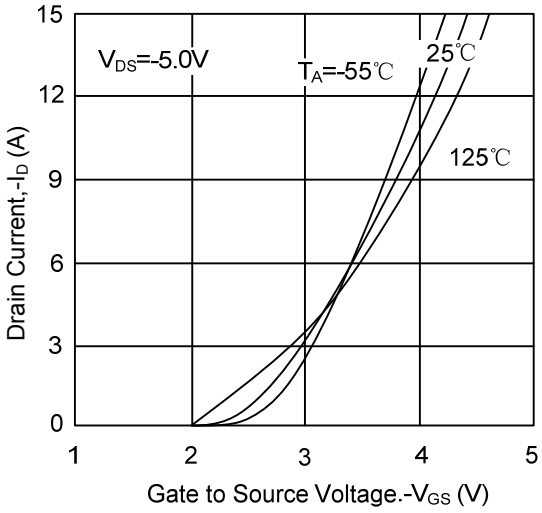
On-Resistance Variation with Temperature



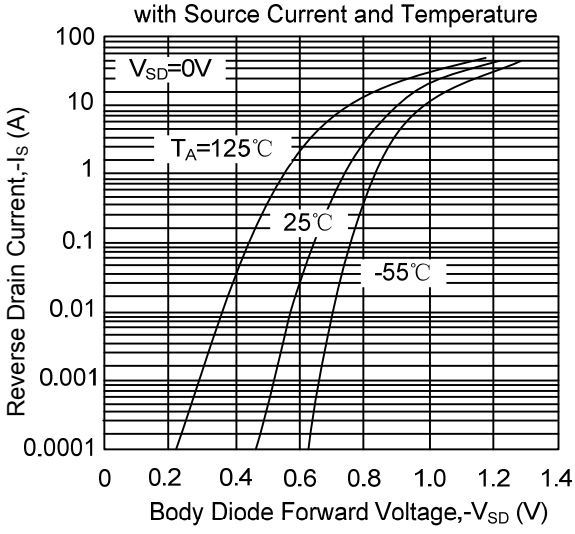
On-Resistance Variation with Gate-to-Source Voltage



Transfer Characteristics

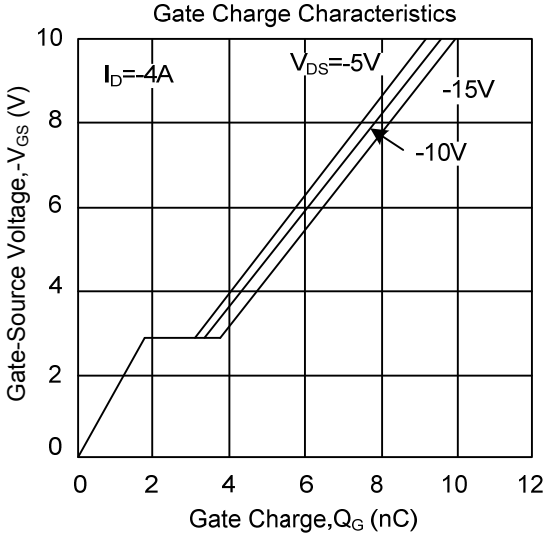


Body Diode Forward Voltage Variation with Source Current and Temperature

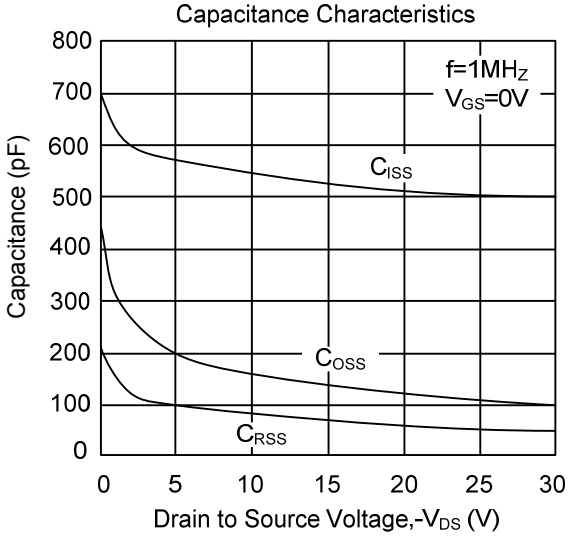


■ TYPICAL CHARACTERISTICS(Cont.)

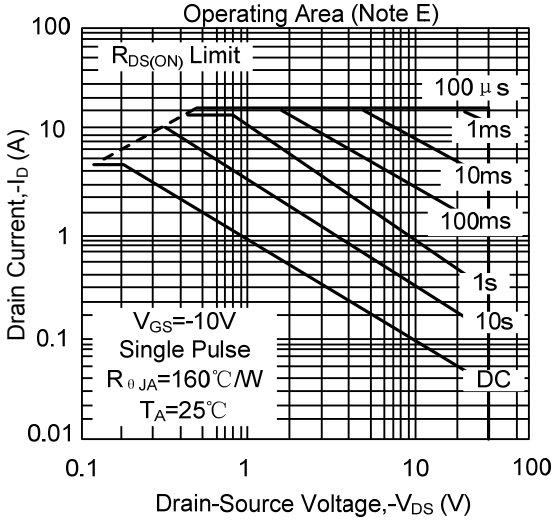
Gate Charge Characteristics



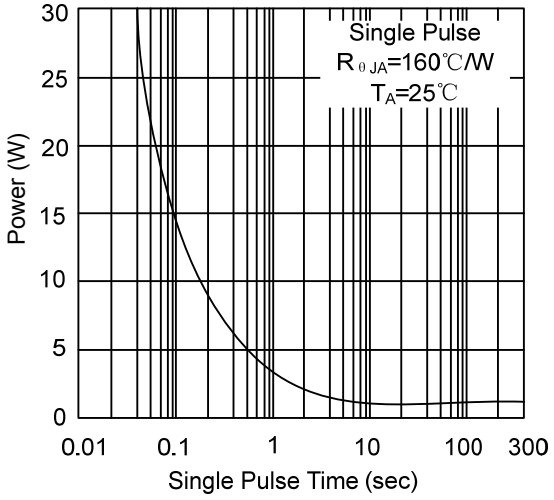
Capacitance Characteristics



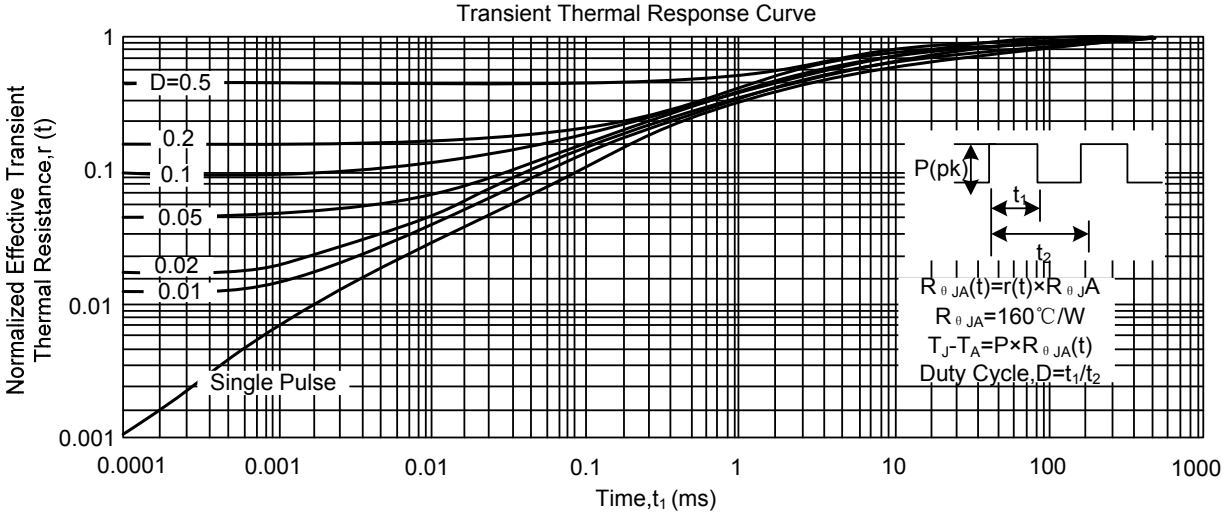
Maximum Forward Biased Safe Operating Area (Note E)



Single Pulse Maximum Power Dissipation



Transient Thermal Response Curve



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